

Synthesis of hydroxy-terminated polytetrahydrofuran by photoinduced process

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Summary

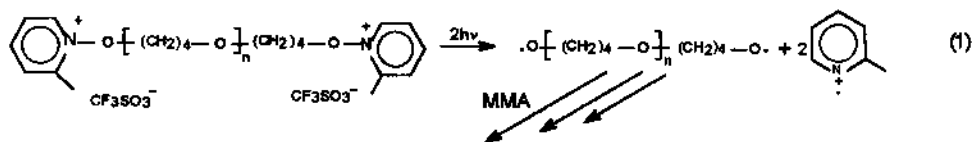
This paper describes the preparation of hydroxy-functional telechelics by photoinduced decomposition of polytetrahydrofuran possessing terminal pyridinium ions in THF solution. Hydroxyl functionality was evidenced by end capping and polycondensation with isocyanates.

Introduction

Polymers with hydroxy, carboxyl, amine functions (telechelics) are of increasing interest due to their use as crosslinker, chain extender and precursors for block and graft copolymers [1-5]. These telechelics can be obtained by a variety of procedure. The most convenient way to prepare telechelics is the termination of living polymerization with appropriate reagents. For instance hydroxy functional polytetrahydrofuran (PTHF) was obtained by deactivation of living polymerization of tetrahydrofuran with excess water [6].

Recently, we have described [7] a convenient and simple synthetic method for the preparation of amino-functional telechelics by a photoinduced process. Amino end groups were introduced effectively when polymers bearing acyloxyimino groups irradiated in the presence of benzophenone followed by hydrolysis.

More recently we have prepared [8] PTHF-pyridinium salts by pyridinium N-oxide deactivation as precursors for block copolymers. Upon direct and sensitized irradiation of these photoactive PTHFs alkoxy radicals at both chain ends capable of initiating the radical polymerization of methyl methacrylate. In this way, triblock copolymers were formed.



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