

A New Macroazo-Initiator for the Synthesis of Polymers with Crown Ether Units

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Crown ethers which have the ability to form complexes with the cations of alkali metals and alkaline earth metals are of increasing interest.¹ The incorporation of a crown ether segment into the backbone of a polymer can induce complexing in the polymer. In order to combine crown ether structure with a polymer, most approaches have been made through the condensation reactions.²⁻⁴ In these reactions, the derivatives of crown ethers were used as two functional monomers. On the other hand, Smid and co-workers⁵ synthesized 4'-vinyl benzo crown ether, which may contribute to the formation of polymers having pendant crown ether groups.

Macroazobitriles (prepared by the use of 4,4'-azobis(4-cyanopentanoyl chloride) [eq.(2)] enables the synthesis of poly(vinyl chloride)-poly(ethylene oxide) block copolymers.⁶ Another technique⁷ has also been used for the chain extension of polymers and block copolymerization via photochemically active dibenzazepine units introduced to the polymers by means of this acid chloride [see eq.(2)].

In this article, we report the synthesis of a polyamid from *trans*-4,4'-diaminodibenzo-18-crown-6, a new macroazo-initiator having appropriate functionality for subsequent vinyl polymerization. The polyamid, is a useful initiator for free-radical polymerizations, yields polymeric products having one or two crown ether groups in accord with the normal kinetic behavior of the particular monomers involved.

EXPERIMENTAL

Synthesis of *Trans*-4,4'-diaminodibenzo-18-crown-6

