

## CROWN ETHER-CONTAINING POLYMERS

UMIT TUNCA and YUSUF YAGCI

*Istanbul Technical University, Department of Chemistry, Maslak, Istanbul 80626, Turkey*

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### 1. INTRODUCTION

During the past 25 years the macrocyclic polyethers, crown ethers and cryptands in particular, have enjoyed a considerable interest because of their potential for a large number of applications. Reasons for their current development are based on their powerful and selective complexation properties with a variety of cations. The synthesis and properties of these compounds have been extensively reviewed.<sup>1-6</sup>

Incorporation of these interesting chelating agents to linear polymers or immobilized polymer supports provides two attractive aspects, namely, (1) facility of their recovery and (2) modification of their complexation properties.

At this point, it should be pointed out that the dipolar interaction between a cation and its partner (crown ether) is often inefficient especially when the cation diameter exceeds that of the crown ether cavity. In this case, successful interaction can be achieved by the formation of stable 2 : 1 sandwich-type ligand-cation, for example when incorporated on a polymer chain as pendent groups. Although some reviews<sup>7-13</sup> have appeared dealing with macrocyclic ligands attached to polymers, they generally focus on the authors' own work and none are very recent. In this review, we focus entirely on crown ether containing polymers, covering various synthetic approaches and properties of ligand-anchored polymers with emphasis on recent developments in this field. Cryptands and podands attached to linear polymers or matrices will be excluded from our work.