Design and Synthesis of Poly(alkylene ether) Polyols for the Flexible Segment of Poly(ether-ester) Elastomers

구태희, 최은지, 김 일*
부산대학교 고분자공학과
(ilkim@pusan.ac.kr*)

Thermoplastic elastomers (TPE) belong to a relatively new and small class of engineering plastics. Nevertheless, they enjoy a steady growth because of their unusual and very important combination of properties. During service, TPE behave as elastomers (*e.g.*, as vulcanized natural rubber) but, in contrast to the classical elastomers, they can be processed by means of the conventional techniques and equipment utilized for all thermoplastics. The TPEs are phase-separated systems comprising a *hard* and solid (crystalline or glassy) phase and another phase, which is *soft* (liquid and rubbery) at room temperature. Strength is provided by the hard phase, while the elastomeric behavior arises from the soft phase. The control of conformation and constitution of the soft segment makes possible the design of new TPEs showing novel properties. In this presentation we introduce new protocols to design variety of polyether based soft segment by using ring opening polymerization of epoxides with double metal cyanide catalysts. The diversification of soft block is demonstrated to be one of the most versatile ways tuning the properties of TPE.