

Fabrication and Analysis of Polymer Confined into AAO Nanopores

김남효, 이진홍*
포항공과대학교 화학공학과
(ce20047@postech.ac.kr*)

Near the glass transition region, a molecular behavior of high molecular weight polystyrene (PS, $M_w=979800$, $PDI=1.03$) in confined geometry was studied by AAO microcantilever. Anodic aluminum oxide (AAO) was used for nanoporous template to confine polymer in 2-dimensional geometry. AAO microcantilever was fabricated from PS inserted AAO structure by photolithography. Nanomechanical thermal analysis (NTA) was a promising method to observe confinement effect of polymer due to modulus and surface stress changes of the cantilever. From this study, it was possible to observe a thermal behavior of polymer near the glass transition temperature (T_g) and expected to get a knowledge about the intrinsic nature of polymer in confined and bulk system.