

Abstract Submitted
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Probing molecular mobility in freely-standing polystyrene films using hole growth CONNIE ROTH, Simon Fraser University, JOHN DUTCHER, University of Guelph — Hole growth provides an elegant technique for measuring the viscoelastic response of a thin film of material to the constant stress applied at the edge of the growing hole due to surface tension. The time-dependent deformation of the material has been studied in detail for thin freely-standing polystyrene (PS) films using both optical microscopy and a unique differential pressure experiment (DPE). We present shear strain rate dependent viscosity results that span reductions in viscosity by 8 orders of magnitude, and we discuss our findings in the context of the large glass transition temperature reductions observed for very thin freely-standing PS films.

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