

Abstract Submitted  
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**A Thermodynamic Treatment of Polymer Thin Film Glasses<sup>1</sup>**

RONALD WHITE, JANE LIPSON, Dartmouth College — We have recently developed a mean field equation of state (EOS) approach to model the thermodynamic properties of polymer thin films. The model is analytic and transparent yielding characteristic film properties as a “whole sample” average. We focus on the properties of freestanding thin films and, parameterizing only with bulk data, demonstrate how the EOS leads to predictions of film properties as a function of film thickness under varied thermodynamic conditions. We share some thoughts on how to use this model for the prediction of the thickness-dependent depression of the thin film glass transition temperature.

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