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**Enthalpy Recovery of Polystyrene: Is the Liquid Equilibrium Line Reached?** YUNG P. KOH, SINDEE L. SIMON, Texas Tech University, TEXAS TECH UNIVERSITY TEAM — Glasses are not in thermodynamic equilibrium below the glass transition temperature ( $T_g$ ), and consequently, their properties such as enthalpy, volume, and mechanical properties evolve toward equilibrium in a process known as structural recovery or physical aging. However, several recent studies have suggested that the equilibrium liquid line is not reached even when properties have ceased to evolve. In this work, we present measurements of the enthalpy recovery of polystyrene at the aging temperature of  $15^\circ\text{C}$  below the nominal  $T_g$ , for aging times up to 1 year. The results are analyzed in the context of the TNM model of structural recovery. The results show that the equilibrium liquid enthalpy line is indeed reached at temperatures below  $T_g$  when enthalpy recovery ceases to evolve. Our results will be discussed and compared to results from works leading to different conclusions. We also use our results to probe the issue of whether or not equilibrium relaxation times diverge from super-Arrhenius behavior below  $T_g$ .

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