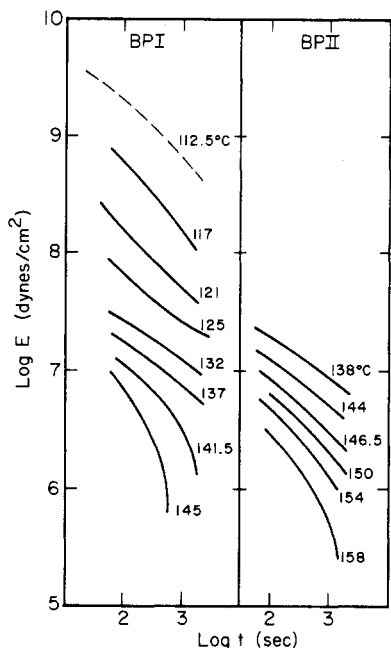
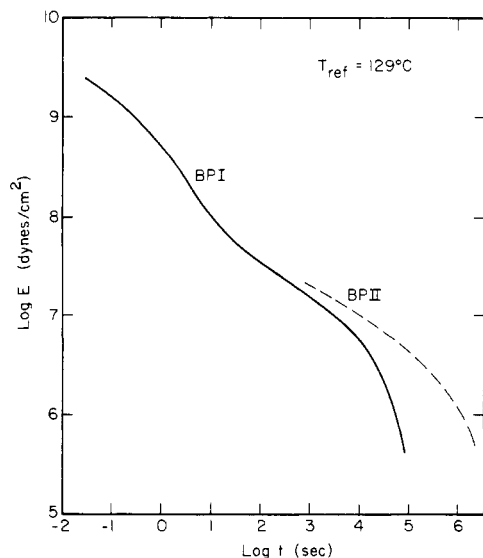


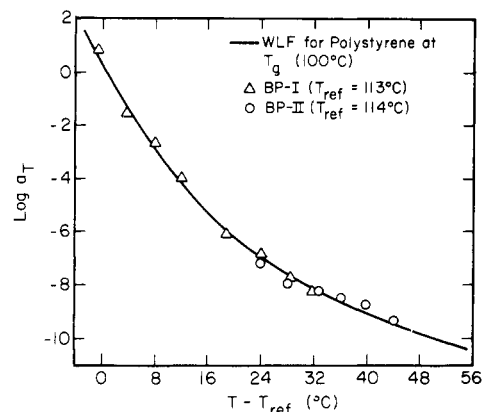
Sample	Composition wt % styrene	$M_w \times 10^{-5}$	H.I. ( $M_w/M_n$ )	$T_g, ^\circ\text{C}^4$	$T_i, ^\circ\text{C}$	$T_{\text{ref}}, ^\circ\text{C}$ (WLF)	$\log (\tau_m/\tau_m^0)$	
							Exptl	Theor
BP-I	50	0.8	1.08	134	115	113	1.76	1.75
BP-II	50	1.5	1.01	132	(116)*	114	1.48	1.75



**Figure 1.** Stress relaxation isotherms for samples BP-I and BP-II of poly(styrene-*b*- $\alpha$ -methylstyrene). Solid curves: tensile data; broken curve: flexural data.



**Figure 2.** Viscoelastic master curves of poly(styrene-*b*- $\alpha$ -methylstyrene). Solid curve: sample BP-I; broken curve: sample BP-II.



**Figure 3.** Viscoelastic shift factor data for samples BP-I (triangles) and BP-II (circles) of poly(styrene-*b*- $\alpha$ -methylstyrene). The solid curve was calculated from the WLF equation with  $C_1 = 13.7$  and  $C_2 = 50.0$ .

s, was adopted for our calculation.<sup>6</sup> Experimental  $\log(\tau_m/\tau_m^0)$  values for BP-I (1.76) and BP-II (1.48) are seen to compare favorably with the calculated value of 1.75 (Table I). Thus, the present work seems to provide further indication of the validity of the molecular theory of viscoelasticity for homogeneous block copolymers.

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## References and Notes

- (1) M. Shen and D. R. Hansen, *J. Polym. Sci., Part C*, **46**, 55 (1974).
- (2) D. R. Hansen and M. Shen, *Macromolecules*, **8**, 343 (1975).
- (3) W. F. Hall and R. E. DeWames, *Macromolecules*, **8**, 349 (1975).
- (4) W. H. Stockmayer and J. W. Kennedy, *Macromolecules*, **8**, 351 (1975).
- (5) F. W. Wang, *Macromolecules*, **8**, 364 (1975).
- (6) D. R. Hansen and M. Shen, *Macromolecules*, **8**, 903 (1975).
- (7) L. M. Robeson, M. Matzner, L. J. Fetters, and J. E. McGrath, "Recent Advances in Polymer Blends, Grafts, and Blocks", L. H. Sperling, Ed., Plenum Press, New York, N.Y., 1974, p 281.
- (8) A. V. Tobolsky, "Properties and Structure of Polymers", Wiley, New York, N.Y., 1960.
- (9) J. D. Ferry, "Viscoelastic Properties of Polymers", 2nd ed, Wiley, New York, N.Y., 1970.
- (10) A. V. Tobolsky and K. Murakami, *J. Polym. Sci.*, **40**, 443 (1959); **47**, 55 (1960).