

Figure 1 a) Plot of $\tan \delta$ vs. temperature for SBR-1502 at 1 Hz. Samples with TBBS = 1.2 phr, S = variable. Uncured sample is also included. b) Detail of the α -relaxation zone. c) Detail of the β -relaxation zone. The error in $\tan \delta$ is $\pm 0.5\%$ and ± 0.1 K in temperature.

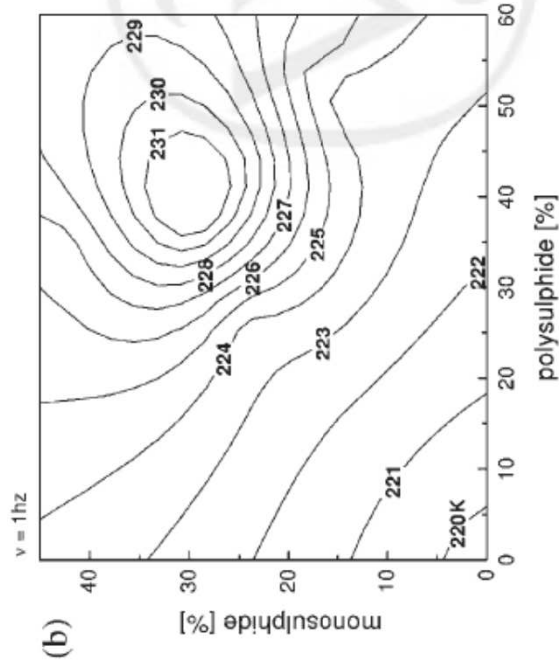
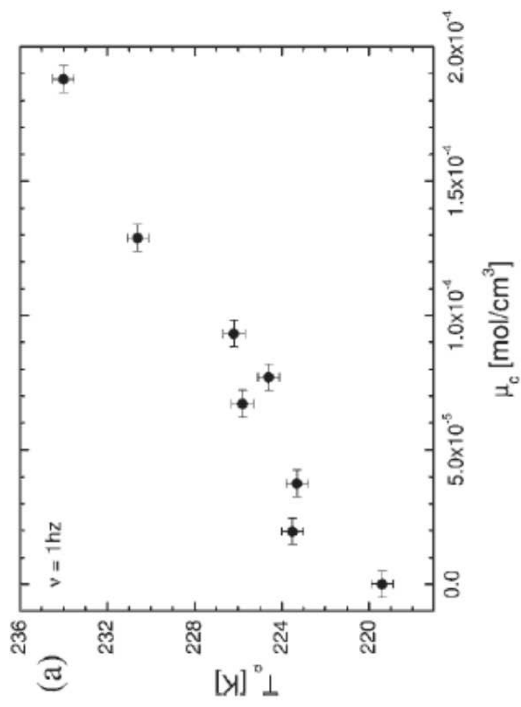


Figure 3 a) Dependence of the glass transition temperature, T_g , with the total crosslink density μ_c . b) Contour plot of the glass transition temperature, T_g , as function of the percentage of polysulphide and monosulphide linkages in the cured compound.

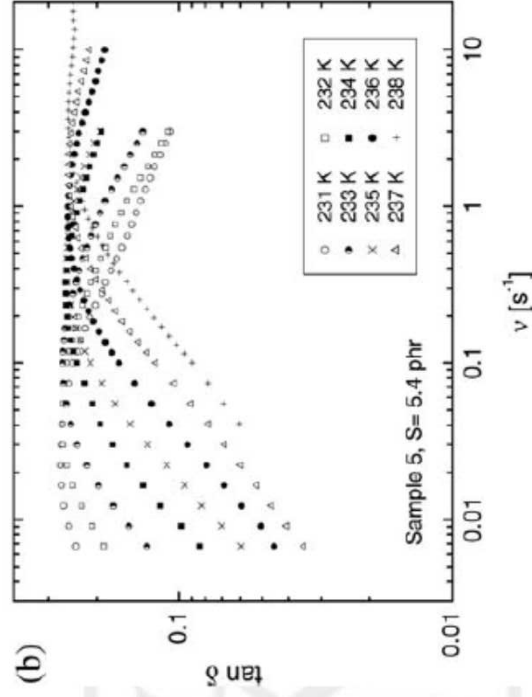
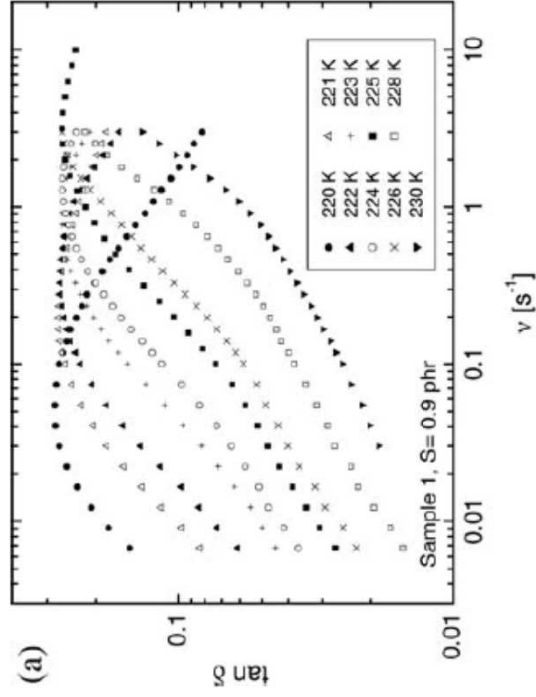
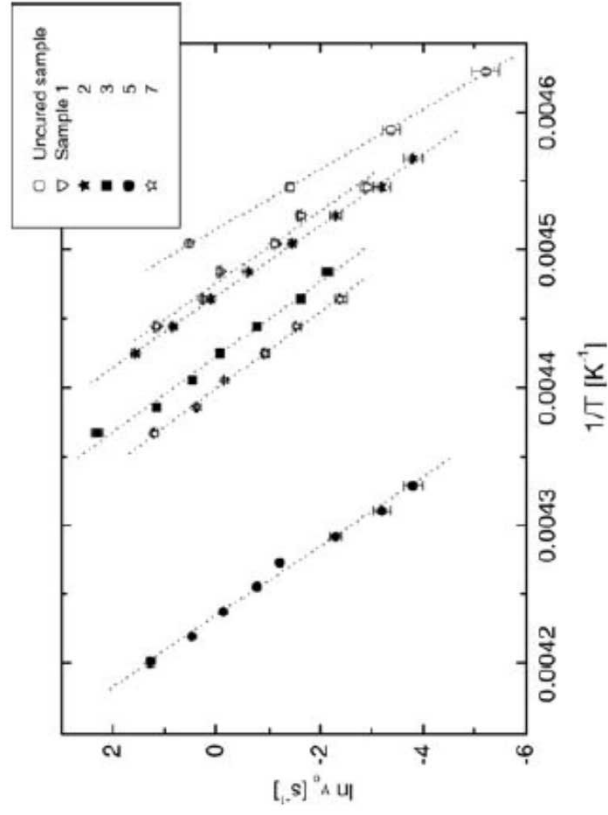


Figure 4 $\tan \delta$ of cured SBR-1502 plotted against the frequency for several temperatures in the α -relaxation range a) Sample 1, $S = 0.9$ phr and TBBS = 1.2 phr, b) Sample 5, $S = 5.4$ phr and TBBS = 1.2 phr. The error in $\tan \delta$ is $\pm 0.5\%$ and $\pm 0.1\%$ in frequency.



$$\ln v_{\alpha} = \ln v_0 - \Delta H_{\alpha}/kT$$

Figure 5 The Arrhenius plot. The slopes are related to the activation energy of the α -peak for each compound.

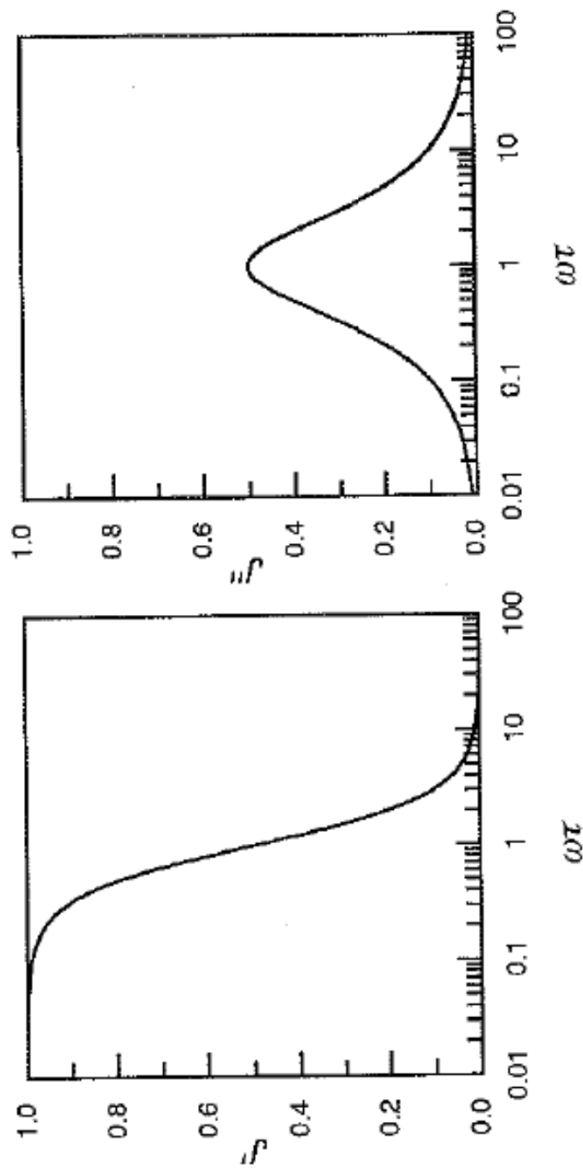


Fig. 5.5. Real part (*left*) and imaginary part (*right*) of the dynamic compliance associated with a mechanical Debye-process

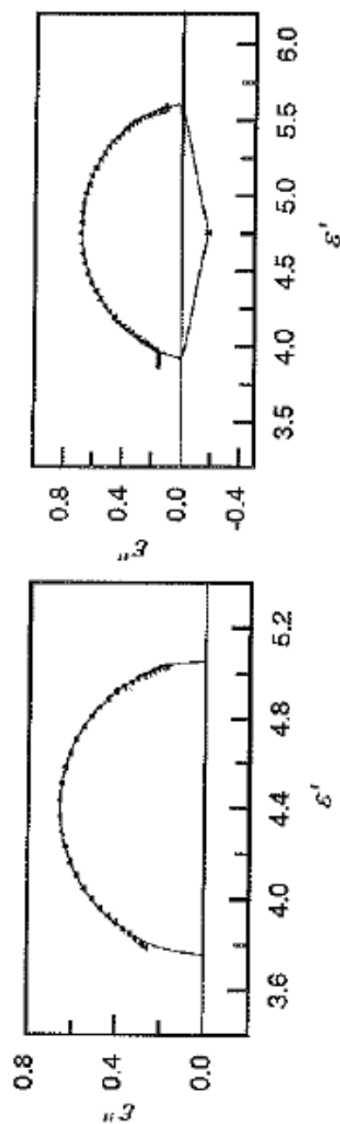


Fig. 5.6. Cole-Cole plots of dielectric data obtained for a dipole carrying rod-like molecule of low molar mass (*left*) and a polysiloxane which has these molecules attached as side-groups (*right*) [48]

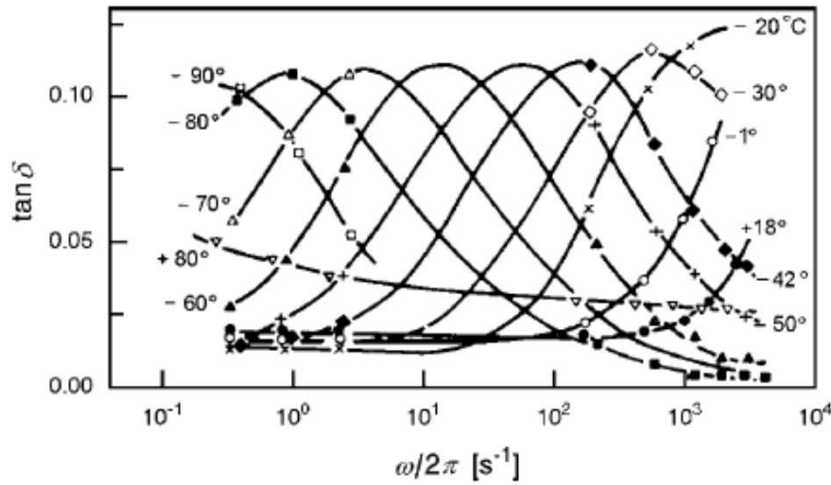
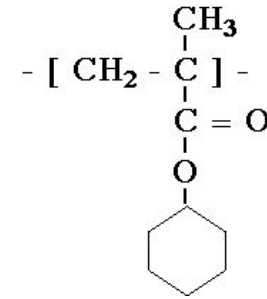


Fig. 6.7. Frequency dependence of the mechanical loss tangent measured for PCHMA at the indicated temperatures (after Heijboer [68])



Poly ciclohexyl methacrylate (PCHMA)

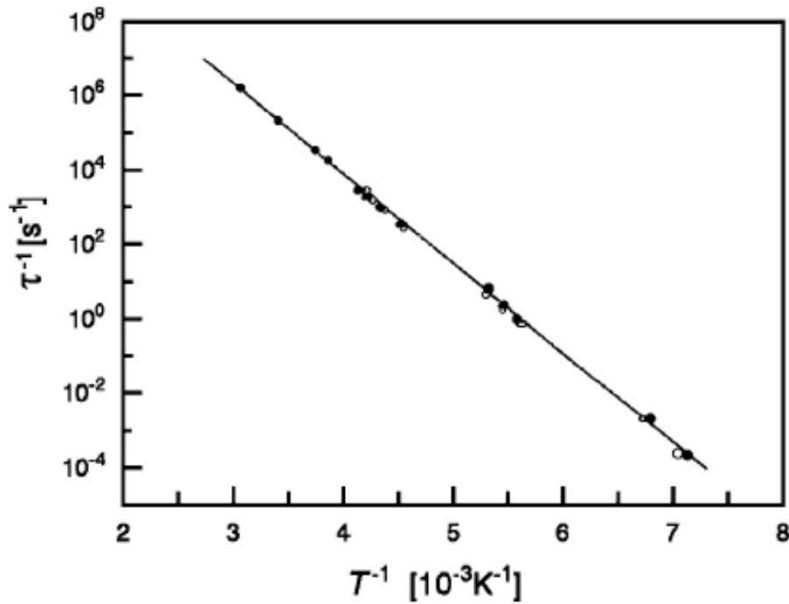
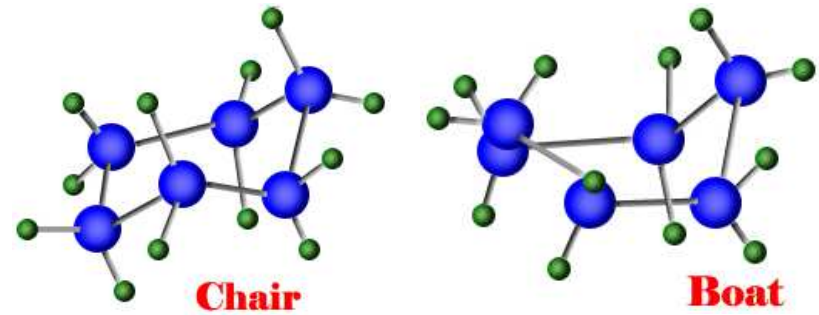


Fig. 6.8. Temperature dependence of the relaxation rates of the γ -process in polyacrylates (*open symbols*) and poly(methacrylates) (*filled symbols*) with pendant cyclohexyl groups. Data from Heijboer [69]



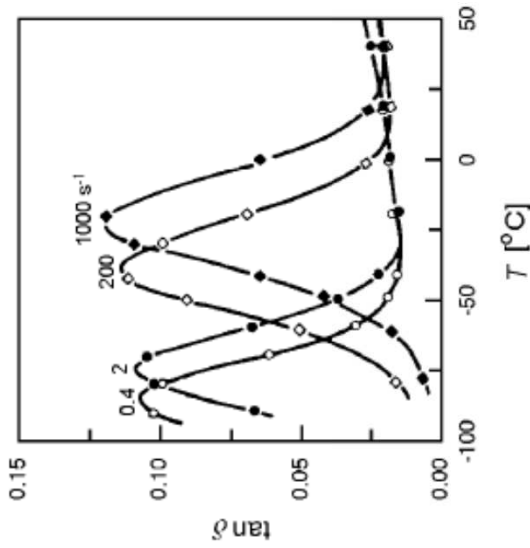


Fig. 6.9. Temperature dependent measurements of the loss tangent of the γ -process of PCHMA for several fixed frequencies $\omega/2\pi$ (after Heijboer [68])

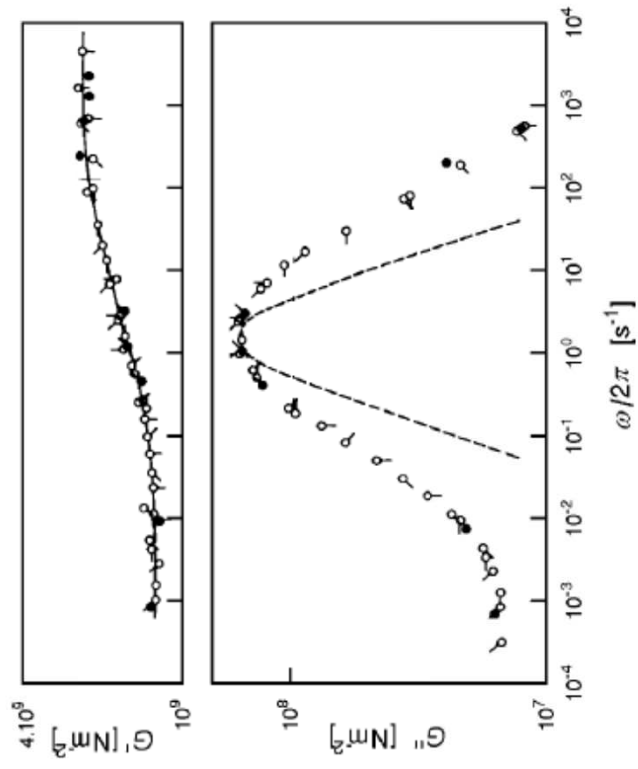


Fig. 6.10. Real and imaginary part of the dynamic shear modulus in the range of the γ -process of PCHMA, synthesized as a master curve using measurements at various temperatures. Curves represent the viscoelastic behavior at -80°C . The *dashed curve* indicates a perfect Debye process. Data from Heijboer [69]

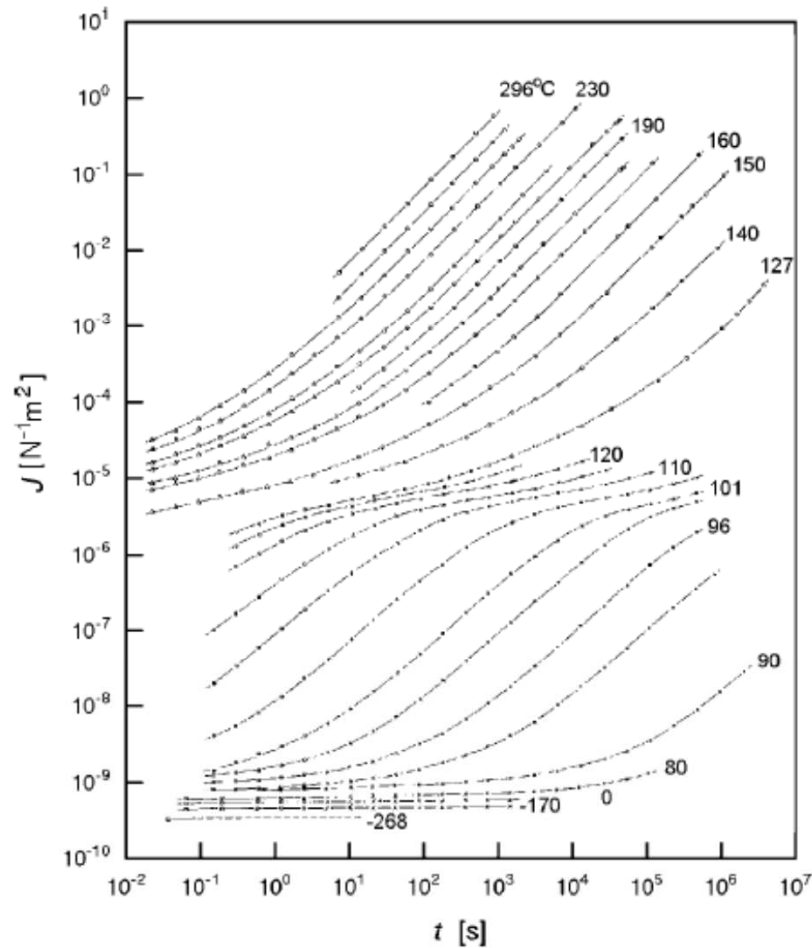
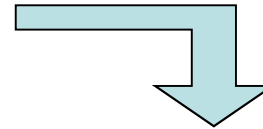


Fig. 6.11. Creep compliance of PS ($\overline{M}_w = 3.85 \times 10^5 \text{ g mol}^{-1}$), as measured at the indicated temperatures. Data from Schwarzl [70]



Curva a una temperatura de referencia T_0

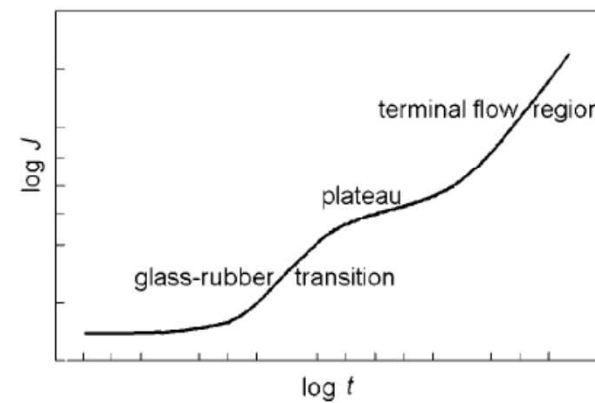


Fig. 6.12. General shape of the complete creep curve of PS, as suggested by the appearance of the different parts shown in Fig. 6.11

Variación con el peso molecular-Zona Terminal

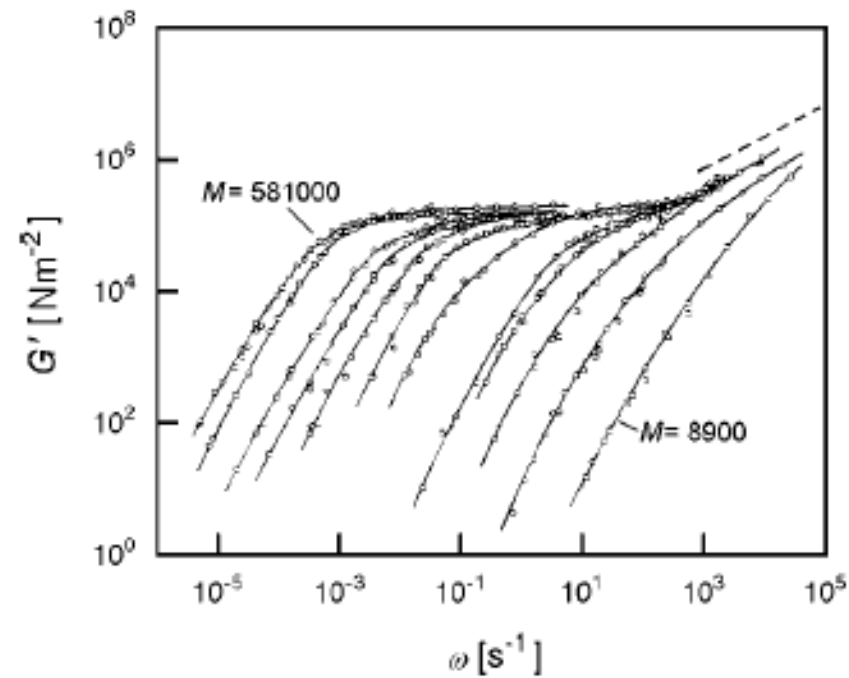


Fig. 6.16. Storage shear moduli measured for a series of fractions of PS with different molar masses in the range $M = 8.9 \times 10^3$ to $5.81 \times 10^5 \text{ g mol}^{-1}$. The *dashed line in the upper right corner* indicates the slope corresponding to the power law Eq. (8.82) derived for the Rouse model of the glass transition. Data from Onogi et al. [74]

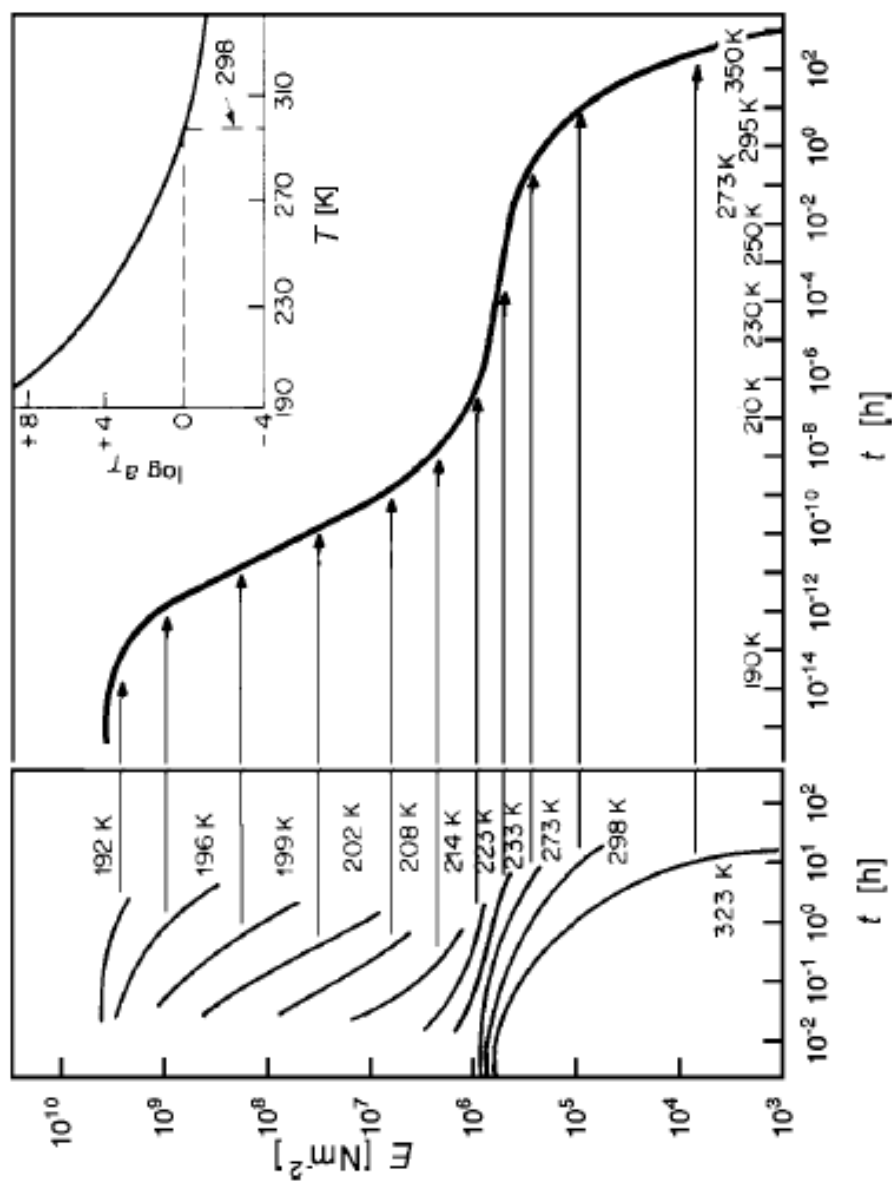


Fig. 6.15. Time-dependent tensile modulus of PIB. Measurements at the indicated temperatures (*left*) and master curve, constructed for a reference temperature $T = 298$ K (*right*). The *insert* displays the applied shifts. Data from Castiff and Tobolsky [73]

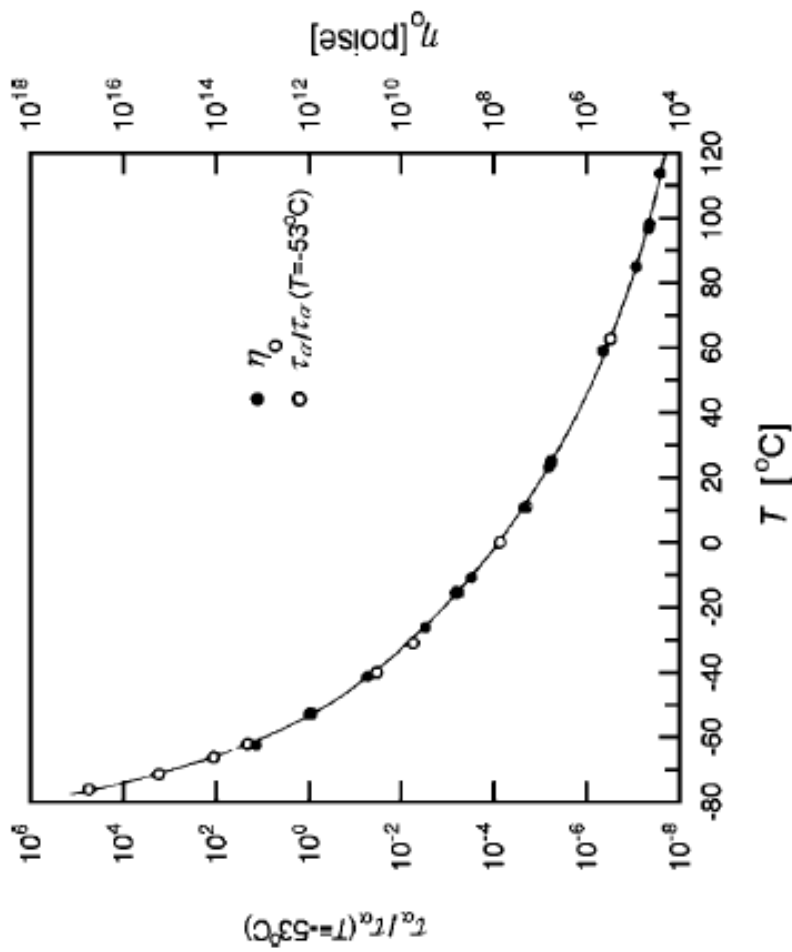


Fig. 6.17. Temperature dependencies of the viscosity η_0 of PIB (open symbols, right axis) and of the relaxation time of the α -process τ_α (filled symbols, left axis). Both correspond to a Vogel–Fulcher function (continuous line). Data from Plazek et al. [75]