Dielectric study on the well-resolved sub-Rouse and JG β-relaxations of poly(methylphenylsiloxane) at ambient and elevated pressures

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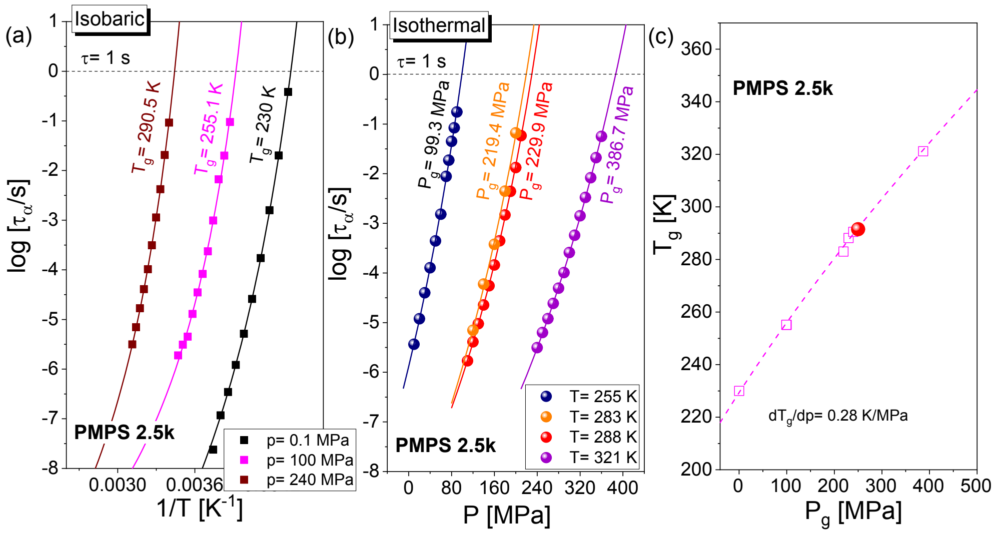

Figure S1 Temperature (a) and pressure (b) dependences of structural relaxation times obtained during isobaric and isothermal measurements for PMPS 2.5k. Solid lines in panels (a) and (b) represent the fits to the VFT equation and its pressure counterpart. Panel (c) reveals the pressure dependence of the glass transition temperatures. The dashed line represents the fit to the Andersson and Andersson equation[1]. The red solid point marks the T_g value at a pressure of 250 MPa.

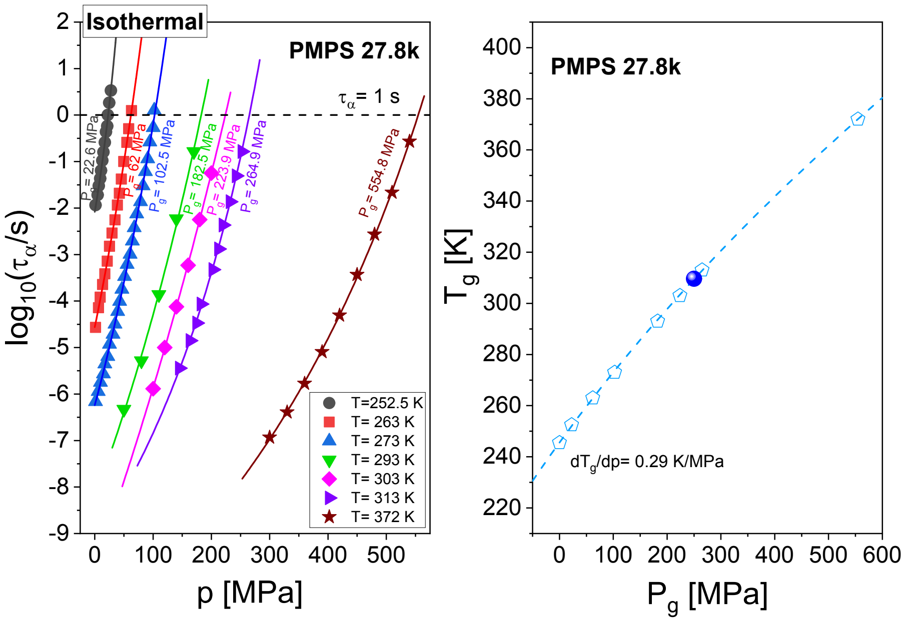

Figure S2 (a) Pressure dependences of structural relaxation times obtained during isothermal measurements for PMPS 27.8k. Solid lines represent the fits to the pressure counterpart of the VFT equation. Panel (b) reveals the fit to the Andersson and Andersson equation. Blue solid circle marks the T_g value at a pressure of 250 MPa.

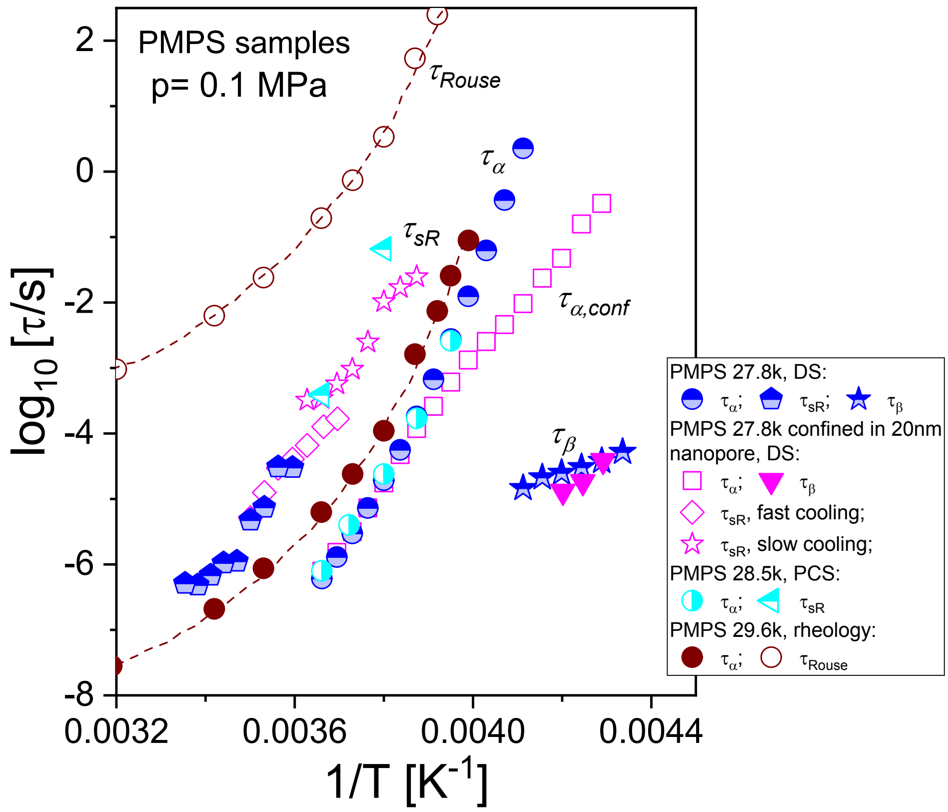

Figure S3. The wine symbols are the relaxation times of the Rouse mode and the α-relaxation determined by rheology for PMPS with M_w= 29.6 kg/mol from Alexandris et al.[2] The dashed lines represent the fits in terms of the VFT equation. The cyan symbols are the relaxation times of the sub-Rouse mode and the α-relaxation determined by PCS for PMPS with M_w= 28.5 kg/mol.[3] The blue symbols are the relaxation times of the sub-Rouse mode, the α-relaxation, and the β-relaxation of PMPS with M_w= 27.8 kg/mol. The magenta symbols are the relaxation times of the sub-Rouse mode, the α-relaxation, and the β-relaxation of PMPS with M_w= 27.8 kg/mol confined in 20 nm AAO pore.[4]

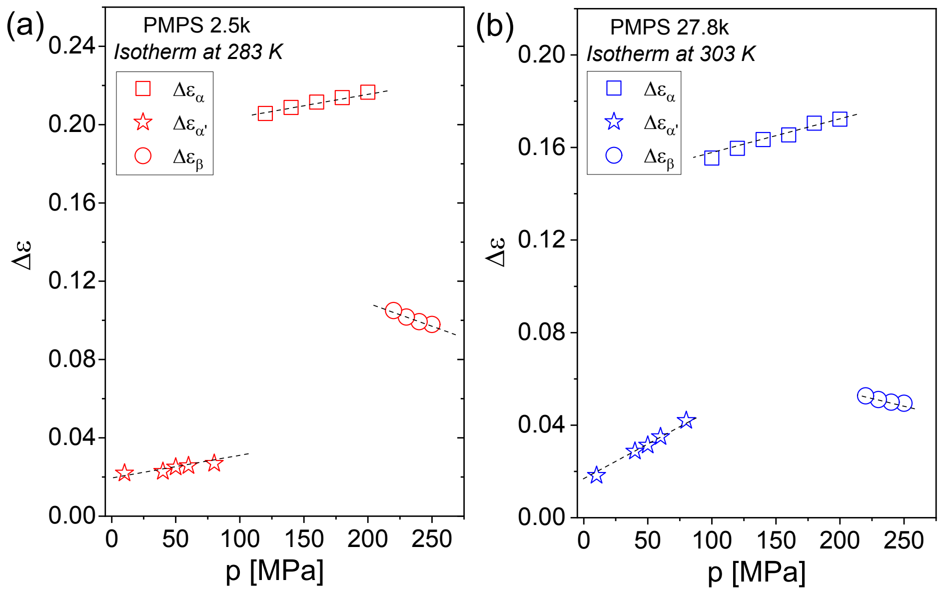

Figure S4 Pressure dependences of the dielectric strengths, $\Delta\varepsilon_{\alpha}$, $\Delta\varepsilon_{\alpha'}$, and $\Delta\varepsilon_{\beta}$ determined for the samples of (a) PMPS 2.5k at T= 283 K and (b) PMPS 27.8k at T= 303 K during isothermal measurements.

References:

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