SUPPORTING INFORMATION

Kinetic Controlled Glass Transition Measurement of Organic Aerosol Thin Films Using Broadband Dielectric Spectroscopy

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Havriliak-Negami Equation and Fitting Principles

The real part of the Havriliak-Negami equation, $\varepsilon'(\omega)$, is shown as:

$$\varepsilon'(\omega) = \varepsilon_\infty + \Delta\varepsilon(1 + 2(\omega\tau)^\alpha \cos\left(\frac{\pi\alpha}{2}\right) + (\omega\tau)^{2\alpha})^{-\beta/2}\cos(\beta\varphi) \quad \text{(S1)}$$

where ε_∞ is the permittivity at the high frequency limit, α, β are fitting parameters, and τ is the characteristic relaxation time of the medium.

The imaginary part of the Havriliak-Negami, $\varepsilon''(\omega)$, is shown in Eq. (2). Sometimes, when there are ionic impurities in the supercooled liquid, a dc-conductivity term that follows strickly through ω^{-1} can contribute to the imaginary part as well (Adrjanowicz et al., 2009). The imaginary part of the of the Havriliak-Negami equation is re-written as:

$$\varepsilon''(\omega) = \frac{\sigma_{dc}}{\varepsilon_o\omega} + \Delta\varepsilon(1 + 2(\omega\tau)^\alpha \cos\left(\frac{\pi\alpha}{2}\right) + (\omega\tau)^{2\alpha})^{-\beta/2}\sin(\beta\varphi) \quad \text{(S2)}$$

where σ_{dc} is the conductivity of the supercooled liquid, $\varepsilon_o$is a permittivity constant.

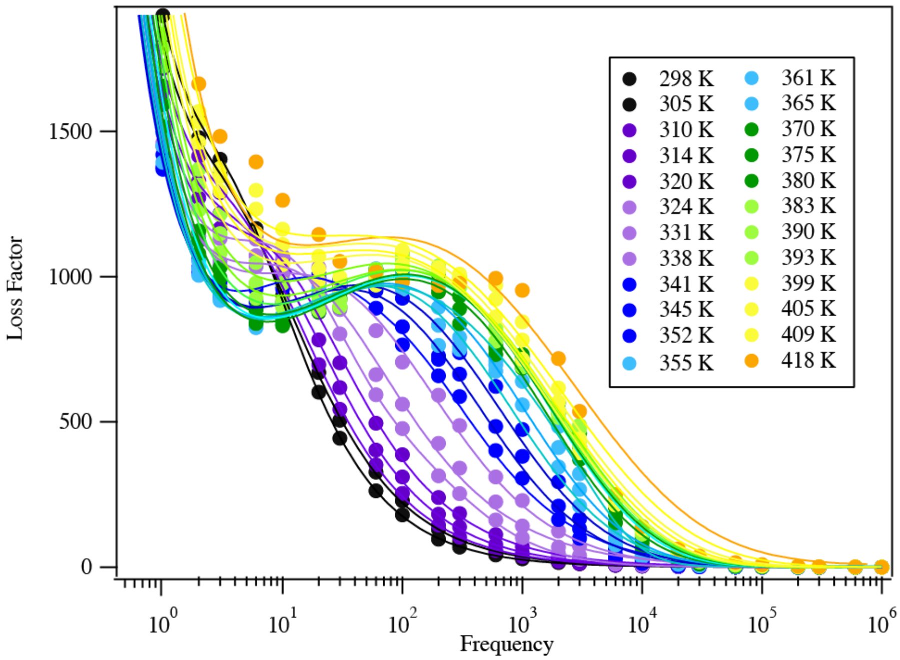

Figure S1. The dielectric relaxation spectrum of citric acid at different temperatures. The solid circles are measurement experimental data and the solid lines are fitting curves parameterized from Eq. (S2) and Adrjanowicz et al. (2009).