Supplementary information

Three-Dimensional Yielding in Anisotropic Materials: Validation of Hill Criterion

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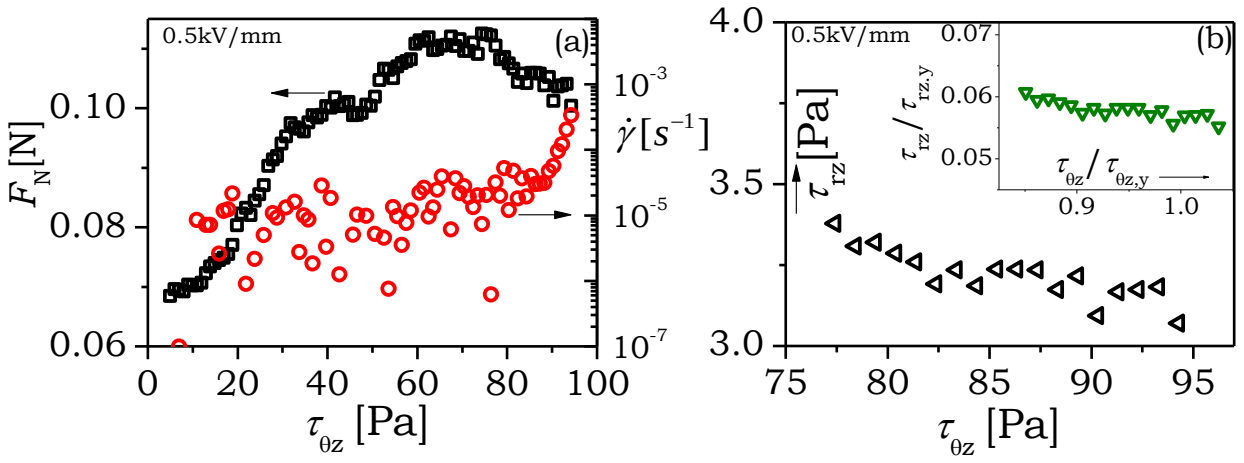

Figure SI-1: For the Corn-starch suspension, (a) Normal force (F_N) experienced by the rheometer top plate and the corresponding rotational shear rate ($\dot{\gamma}$) is plotted as a function of rotational shear stress ($\tau_{\theta z}$) till the yield point in the purely rotational experiment. For the same system, (b) Radial shear stress (τ_{rz}) is plotted as a function of rotational shear stress ($\tau_{\theta z}$). In the inset of (b) $\tau_{rz}/\tau_{rz,y}$ is plotted with respect to $\tau_{\theta z}/\tau_{\theta z,y}$. All the above results are obtained at $E = 0.5$ kV/mm.

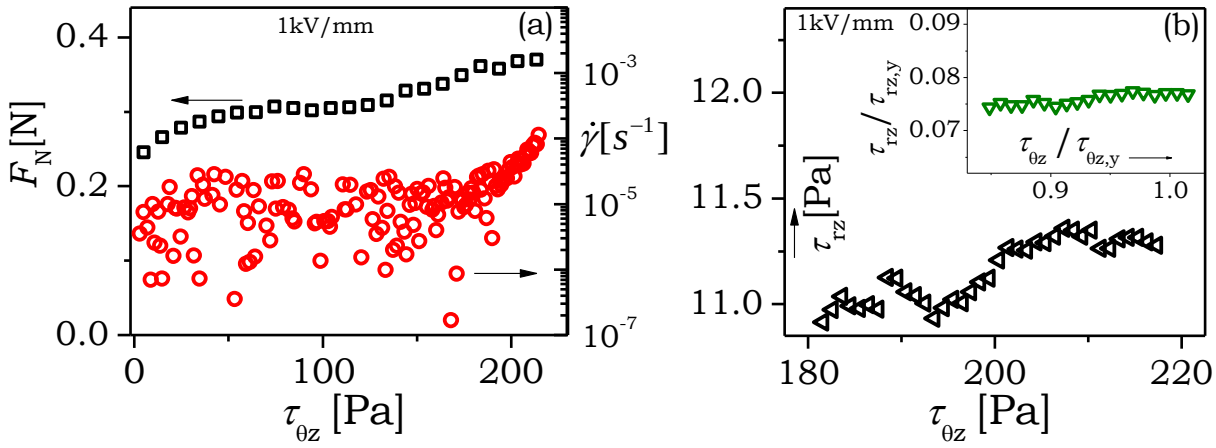

Figure SI-2: For the Corn-starch suspension (a) Normal force (F_N) experienced by the rheometer top plate and the corresponding rotational shear rate ($\dot{\gamma}$) is plotted as a function of rotational shear stress ($\tau_{\theta z}$) till the yield point in the purely rotational experiment. For the same system (b) Radial shear stress (τ_{rz}) is plotted as a function of rotational shear stress ($\tau_{\theta z}$). In the inset of (b) $\tau_{rz}/\tau_{rz,y}$ is plotted with respect to $\tau_{\theta z}/\tau_{\theta z,y}$. All the above results are obtained at $E = 1.0$ kV/mm.