

## Abstract



Title of Document: **Rheology and Microstructure of Hydrophilic and Hydrophobic Fumed Silica in Nematic Liquid Crystals**

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Liquid Crystals (LCs) molecules have anisotropy of crystalline material with the fluidity of liquids. LCs are extensively used in electronic and bio-sensing industries. However fluid nature of LCs poses hurdles in the fabrication of instruments. We have prepared LCs gel by adding fumed silica nanoparticles of hydrophilic and hydrophobic nature in different volume fractions. We have done rheological measurements of the suspensions which suggests that soft glassy dynamics is being followed by the suspension with hydrophilic fumed silica particle loading and critical

gel dynamics is followed by the hydrophobic fumed silica suspension. We have found that the microscopic structure of both suspensions is different.