

Supporting Information

Solvation and Diffusion of Poly (vinyl alcohol) Chains in a Hydrated Inorganic Ionic Liquid

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Gel permeation chromatography (GPC). GPC was performed using a TOSOH GPC system equipped with refractive index and UV detectors at ambient temperature. A TSK-GEL Super MultiporePW-M column with a particle size of 5 μm and different pore sizes was used for the characterization of 4 mg mL^{-1} polymer solutions. Water was used as an eluent for the characterization of polymers. All solutions were eluted at a rate of 0.3 mL min^{-1} , at ambient temperature.

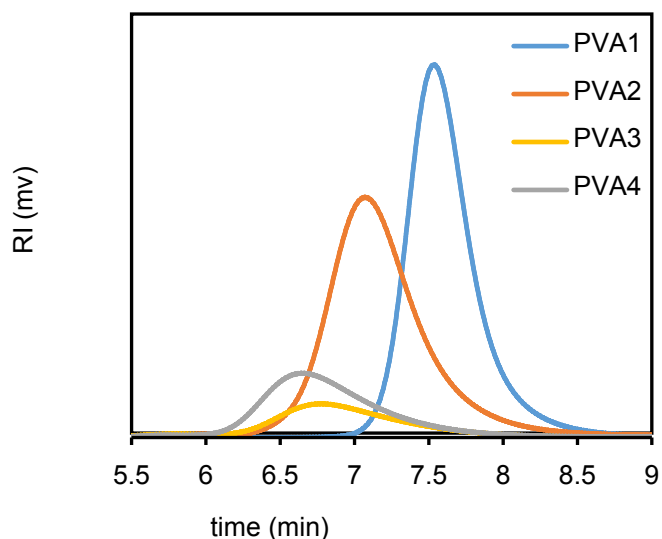


Figure S1. GPC traces of 4 mg/ml aqueous solutions of PVA with different molecular weights.

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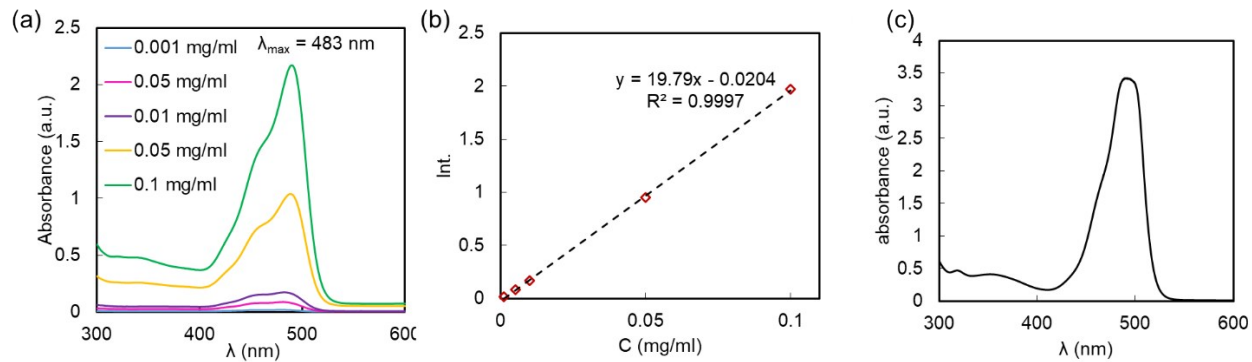


Figure S2. UV-vis calibration curves and determination of the labeling degree of PVA* with FITC: (a) UV-vis absorbances of aqueous solutions of FITC of known concentrations (pH = 11); (b) the calibration curve for determining FITC concentration and (c) a UV-vis spectrum of 1 mg/ml aqueous solution of PVA3* after extensive dialysis. Only PVA3* results are shown here as an example.

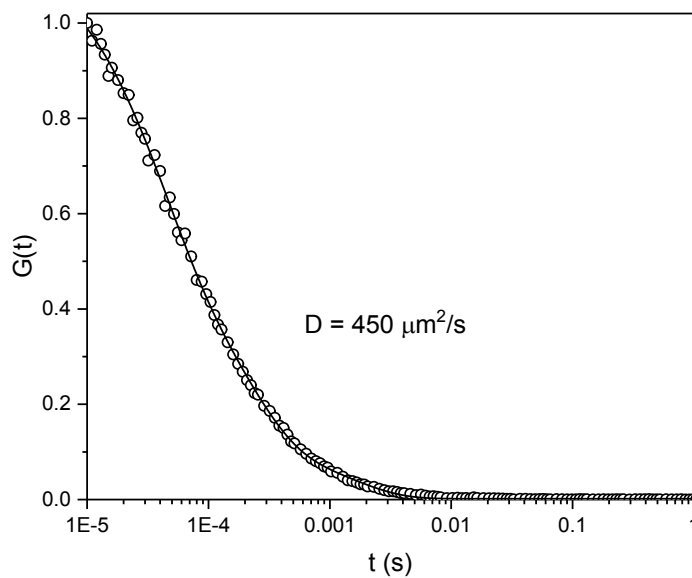


Figure S3. FCS autocorrelation function and diffusion coefficient of FITC in aqueous solutions used for calibration of the excitation volume of the FCS setup. Temperature was 22 °C.

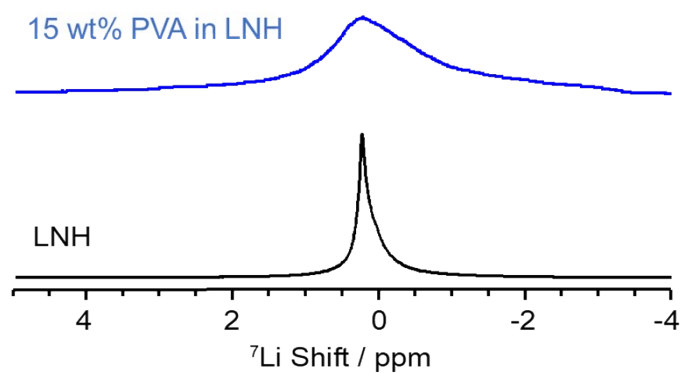


Figure S4. ^7Li NMR spectra of a 15 wt% solution of PVA in LNH, along with the spectra of LNH solvent.

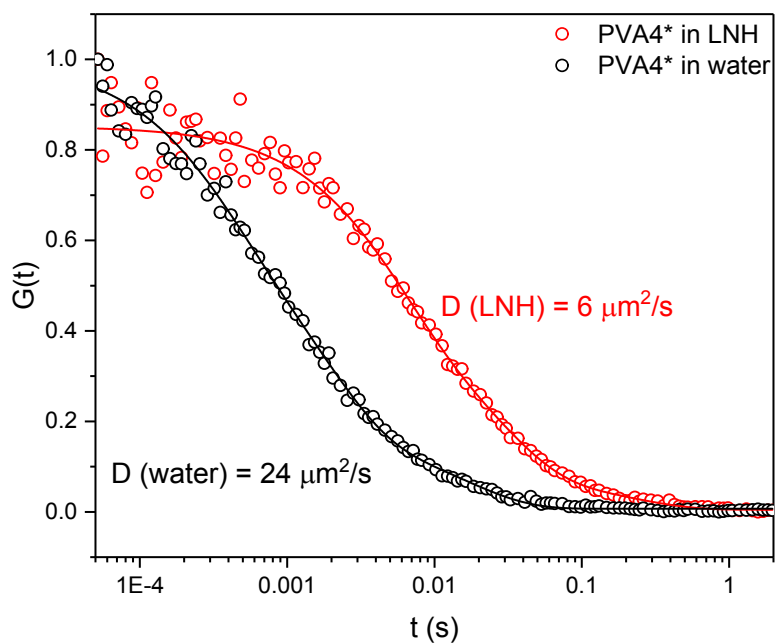


Figure S5. FCS autocorrelation functions and diffusion coefficients of 10^{-4} mg/ml PVA4* solutions in water and LNH. Temperature was 22 °C.

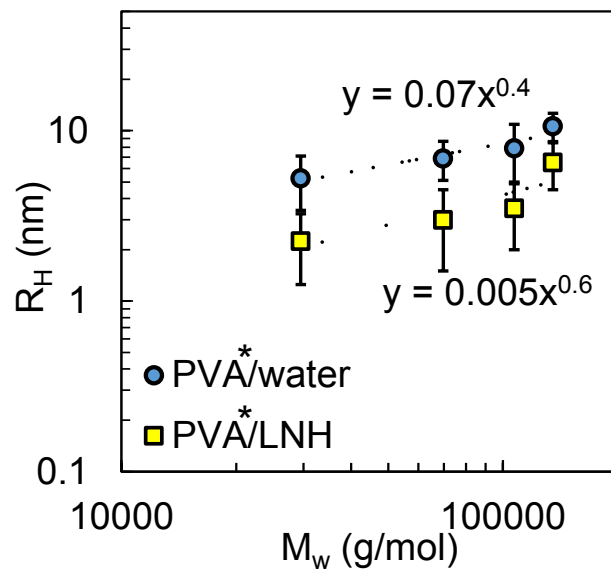


Figure S6. Molecular weight dependences of hydrodynamic radii of PVA* measured in 10^{-4} mg/ml aqueous or LNH solutions at 22 °C.

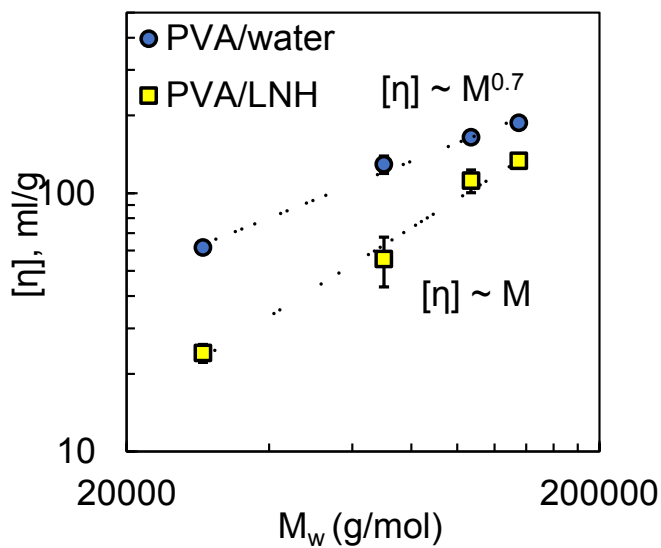


Figure S7. Molecular weight dependences of intrinsic viscosities of PVA in aqueous and LNH solutions at 35°C.

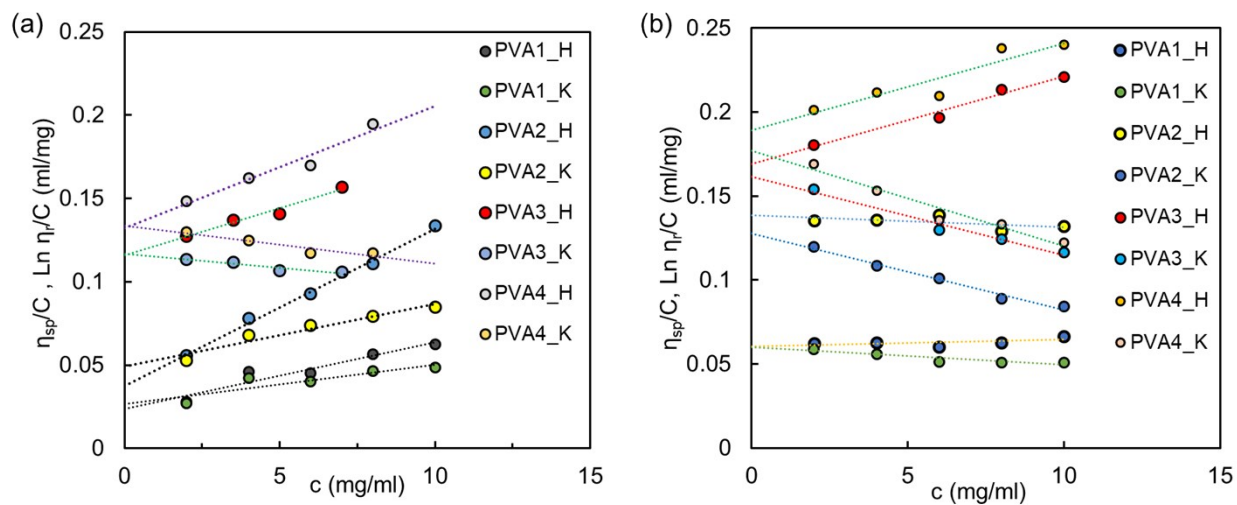


Figure S8. Intrinsic viscosity measurements for PVA in (a) LNH, and (b) aqueous solutions at a temperature of 35 °C. “H” and “K” refer to fitting using the Huggins and Kraemer equations, respectively.