Supporting Information for

Nanoparticle-Crosslinked Hydrogels as a Class of Efficient Materials for Separation and Ion Exchange

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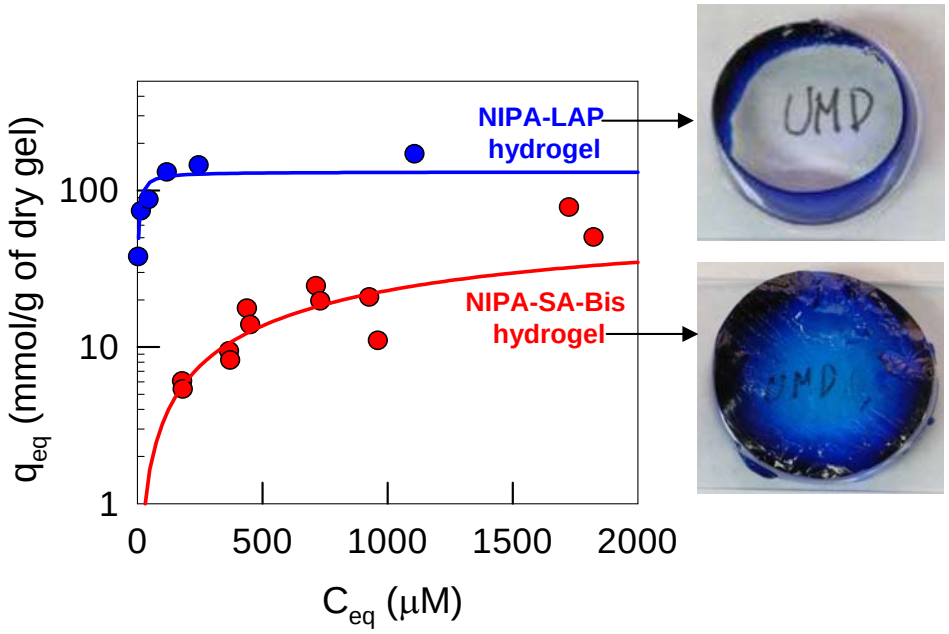

Figure S1. Adsorption isotherms for a NIPA-laponite hydrogel and a NIPA-SA-BIS hydrogel in solutions of the cationic dye, methylene blue (MB). The plot shows the equilibrium adsorbed amount of dye per gram of dry gel (q_{eq}) as a function of the equilibrium dye concentration C_{eq} in solution. The lines through the data are fits to the Langmuir adsorption isotherm (eq below). q_{max} is the maximum possible amount of dye that can be adsorbed and b is the adsorption constant. Fitted parameters are shown in the table below. Cross-sections of the two gels are shown by the photographs. Note that the dye is confined to a thin layer near the surface in the case of the NIPA-laponite gel whereas it is distributed uniformly in the case of the NIPA-SA-BIS gel.

Langmuir equation:

$$q_{eq} = \frac{q_{max} \cdot b \cdot C_{eq}}{1 + b \cdot C_{eq}}$$

gel type	q_{max} **(μmol/g)**	b **(1/mM)**
NIPA-Laponite	132.4	0.121
NIPA-Sodium Acrylate-BIS	71.9	0.00047

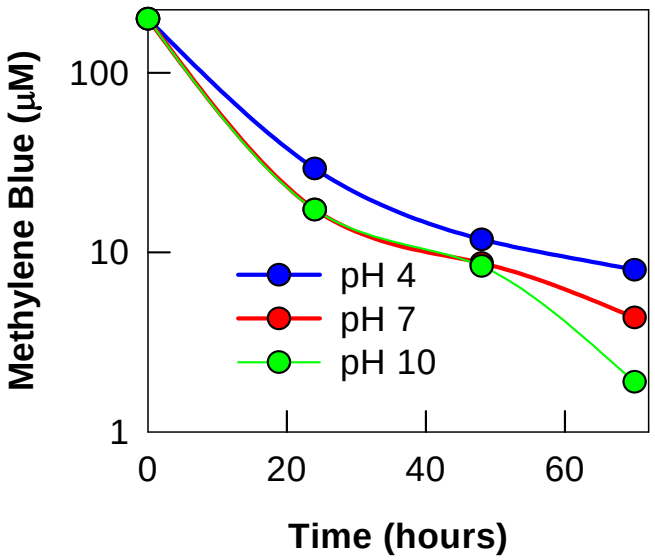

Figure S2. Separation of the cationic dye, methylene blue (MB), from buffered solutions of different pH by a laponite-crosslinked NIPA gel. Plots of dye concentration vs. time are shown for three different pH values. The results are nearly identical, indicating that the binding of MB to laponite is unaffected by pH.