SUPPORTING INFORMATION FOR

Heparin Mimic Material Derived from Cellulose Nanocrystals

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14

CONDUCTOMETRIC TITRATIONS

Surface charge density of the CNCs was determined using titration. This titration can be viewed in Figure S1. Within the graph the curve was divided into three parts: HCl titration, CNC surface charge titration and excess NaOH. This partitioning of the graphical data assists the calculation of the surface charge variables. Equation S1 was used to calculate the concentration of negatively charged functional groups:

$$\frac{mmol\ negativly\ charged\ functional\ groups}{kg\ cellulose} = \frac{C_{NaOH} * V_{NaOH}}{W_{CNC}}$$

Equation S1: Surface charge density calculation used to measure the amount of negatively charged functional groups on the surface of CNCs.

C_{NaOH} is the molar concentration of base used in the titration, V_{NaOH} is the volume used to get the change in curve during the titration, and W_{CNC} is the weight in grams of the CNCs added to the titration.

Sodium chloride was added to the solution because the phase behavior of CNCs is sensitive to electrolytes. By adding an electrolyte, the phase shifts from being

predominantly anisotropic to isotropic.[19] An isotropic solution is favorable because the conductivity values are more precise.

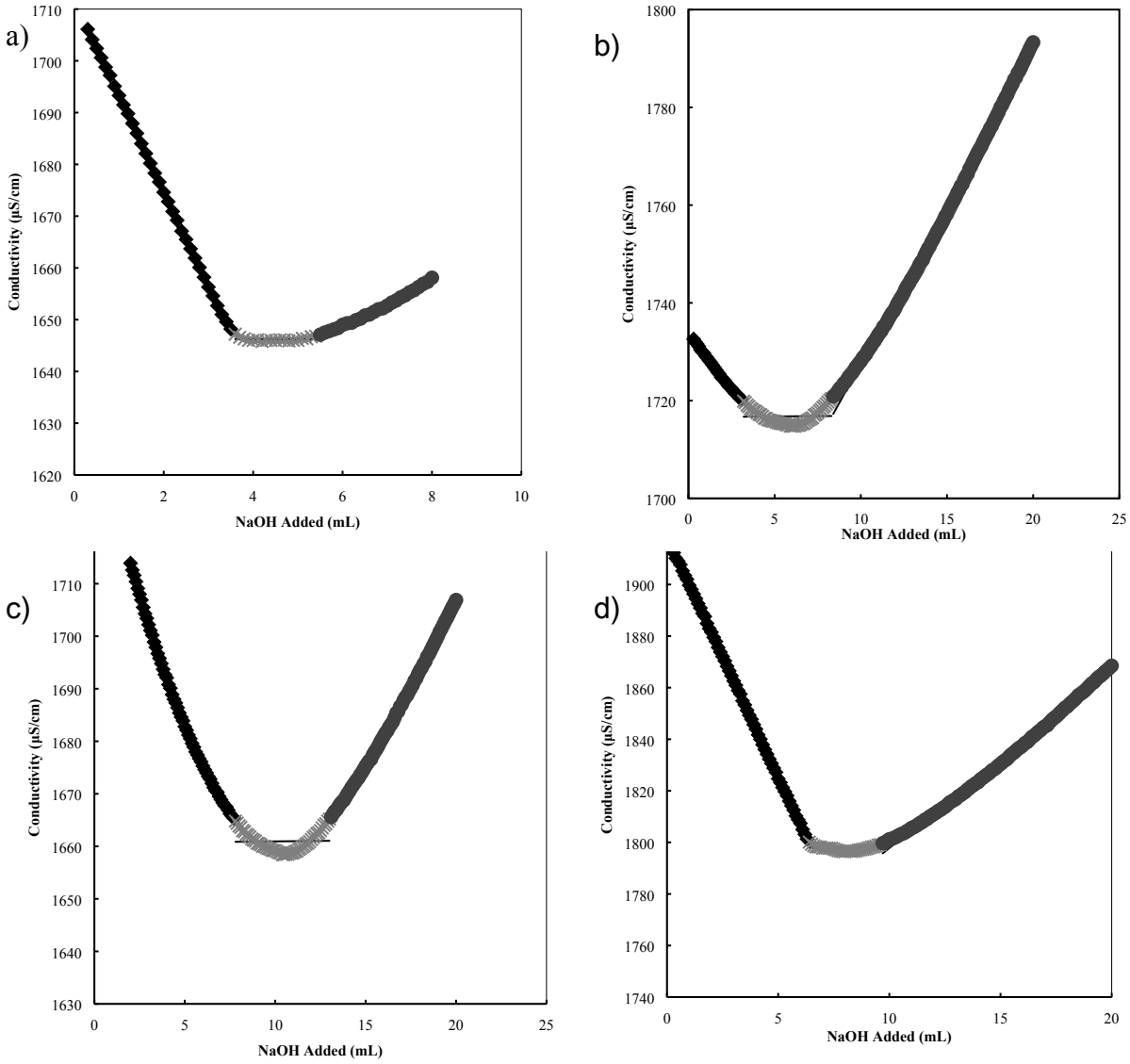

Figure S1. Conductometric titrations for (a) PCNC-1, (b) TEMPO CNC, (c) S-TEMPO CNC, and (d) S-CNC. The diamond shape shows the HCl titration portion, X-shape the charge titration of the sample, and the circle excess NaOH.

36

37