SUPPORTING INFORMATION

Surface charge influence on the phase separation and viscosity of cellulose nanocrystals

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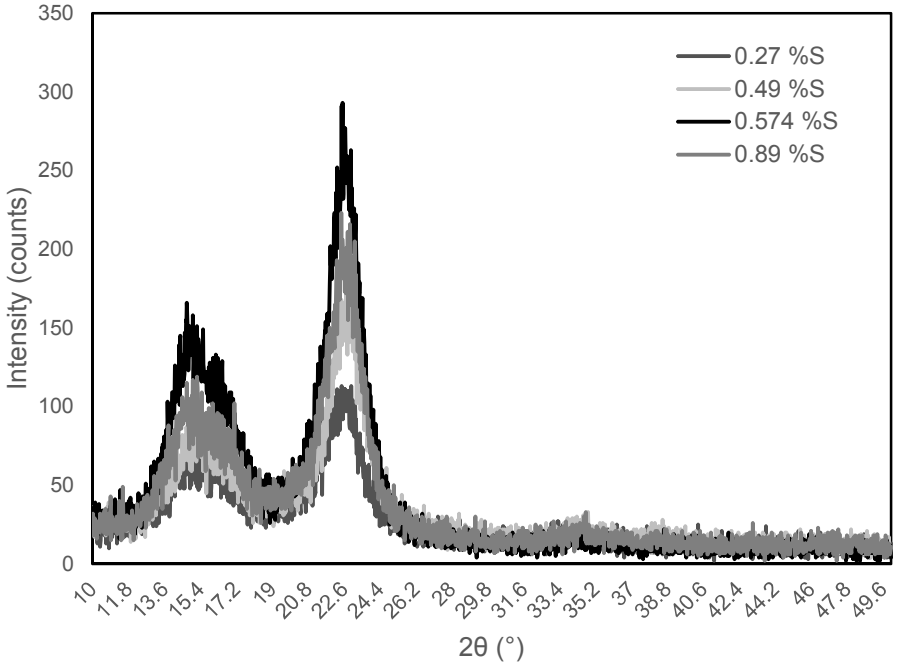

Figure S1. XRD of the CNC suspensions.

Table S1. Relative crystallinity indices (RCIs) determined from XRD analysis.

Sample	RCI (%)
0.27 %S	85.4
0.49 %S	91.7
0.574 %S	92.5
0.89 %S	89.9

Table S2. DLS particle size and zeta-potential of CNC suspensions.

Sample	DLS size (nm)	Zeta-potential (mV)
0.27 %S	64	-36
0.49 %S	79	-38
0.574 %S	79	-33
0.89 %S	61	-36

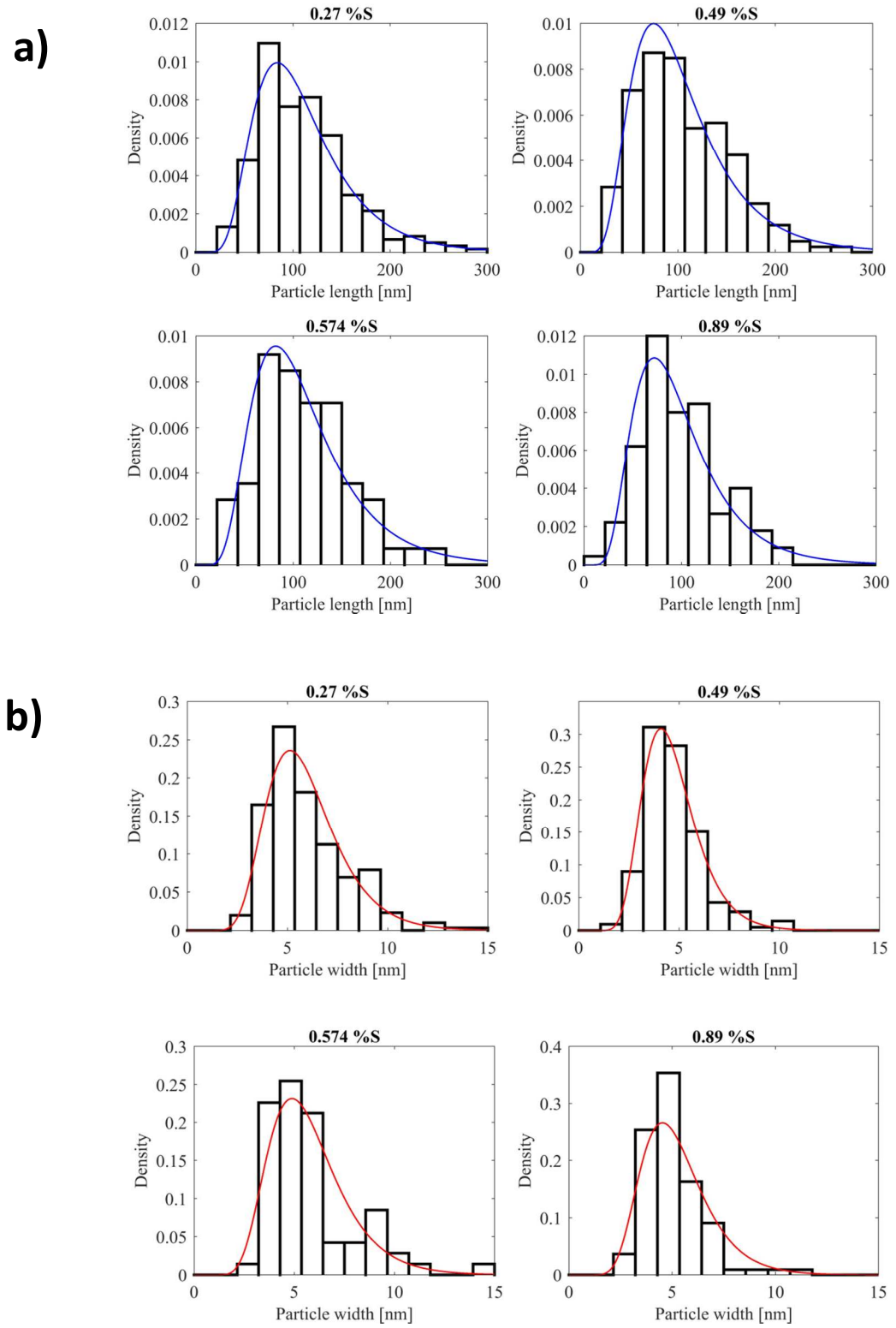

Figure S2. Histograms showing the distribution of CNC lengths (a) and widths (b) in the four different CNC suspensions as measured by cryo-TEM image analysis of individual and well-defined particles.

Histograms were obtained using probability density (pdf) normalization while a log-normal distribution was used to fit the data (see polydispersities and fitting parameters in Table S3).

Table S3. Parameters (σ and μ) from log-normal distribution used to fit CNC size distribution data. Associated polydispersity indices (PDIs) calculated as the square of the standard deviation divided by the average size are also presented.

		0.27 %S	*0.49 %S*	*0.574 %S*	*0.89 %S*
Length parameters	σ	0.435	0.475	0.458	0.459
	μ	4.618	4.545	4.617	4.489
	PDI	0.233	0.252	0.206	0.206
Width parameters	σ	0.314	0.301	0.333	0.315
	μ	1.733	1.502	1.697	1.611
	PDI	0.122	0.103	0.158	0.262

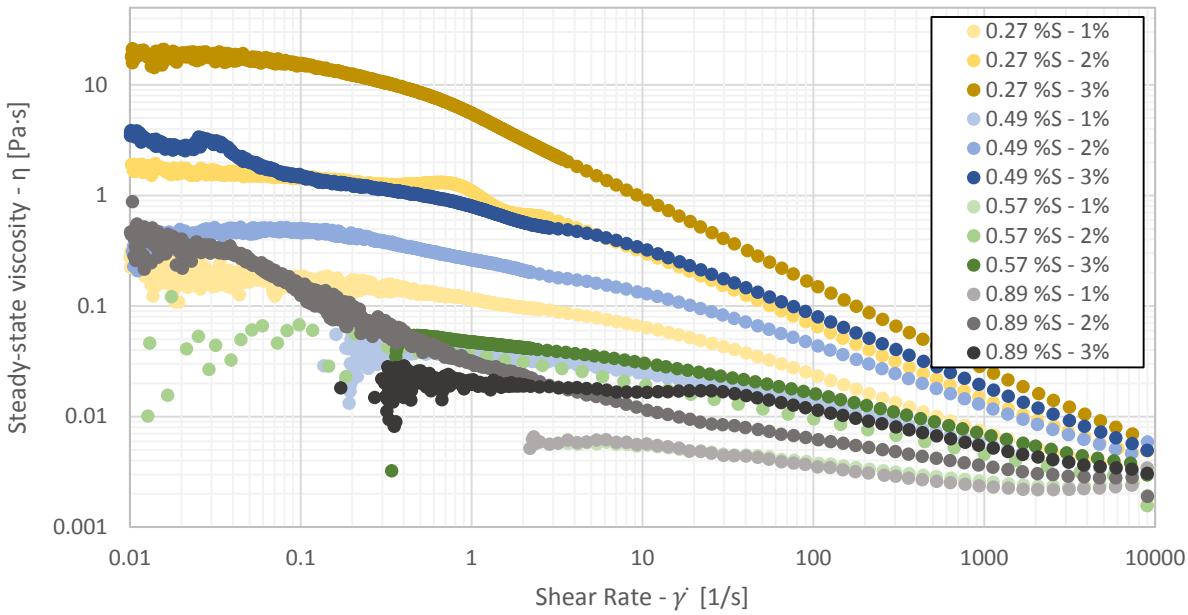

Figure S3. Viscosity as a function of shear rate for CNC suspensions with concentrations of 1–3 wt%. Viscosity behavior is nearly Newtonian for high surface charge suspensions at low concentration (1 wt%).