Supporting information

Cellulose Nanocrystals as Stabilizers for Waterborne Fluorescent Non-Isocyanate Polyurethane Latexes

Hsin-Chen Chen,[a,b] Gilles Sèbe,[b] Thomas Vidil,[b] Lars. A. Berglund,[c] Audrey Llevot,[b,*] Qi Zhou,[a,*] and Henri Cramail [b,*]

[a] Division of Glycoscience, Department of Chemistry, School of Engineering Sciences in Chemistry, Biotechnology and Health, KTH Royal Institute of Technology, AlbaNova University Centre, SE-106 91 Stockholm, Sweden

[b] CNRS, University Bordeaux, Bordeaux INP, Laboratoire de Chimie des Polymères Organiques, UMR 5629, 33600 Pessac, France

[C] Department of Fibre and Polymer Technology, KTH Royal Institute of Technology, Teknikringen 56, SE-100 44 Stockholm, Sweden.

E-mail: qi@kth.se, henri.cramail@enscbp.fr, audrey.llevot@enscbp.fr

Supporting Information contains 5 pages including 7 Figures.

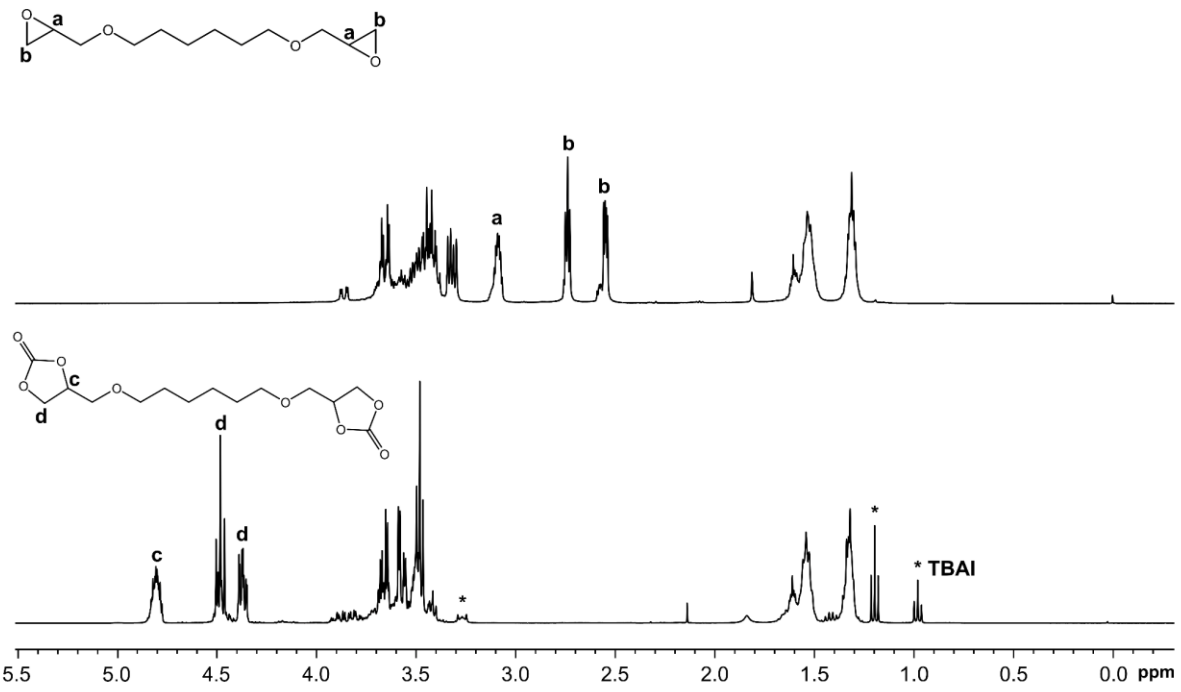

Fig. S1. ^{1}H NMR spectra of 1,6-hexanediol diglycidyl ether as the starting material and 1,6-hexandiol bis(cyclic carbonate) after CO_2 carbonation reaction. The samples were dissolved in $CDCl_3$.

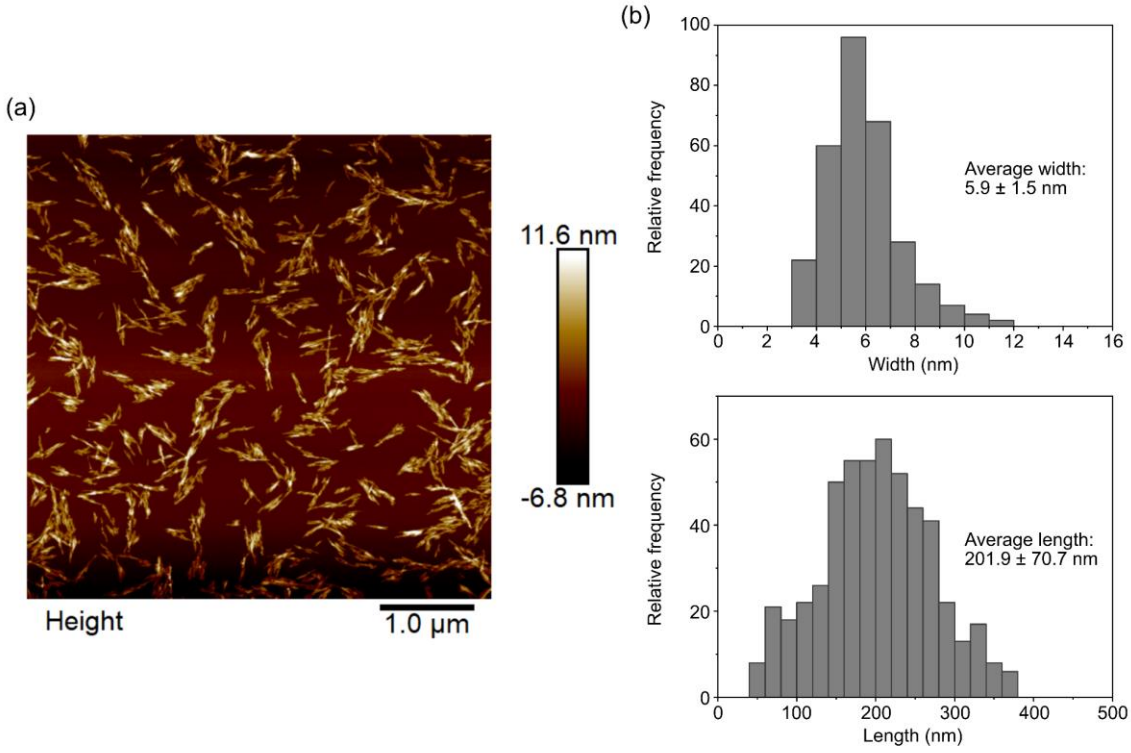

Fig. S2. (a) AFM height image of the CNCs, which was deposited on a silicon wafer and dried. (b) Corresponding histograms of the width and length distribution of CNCs.

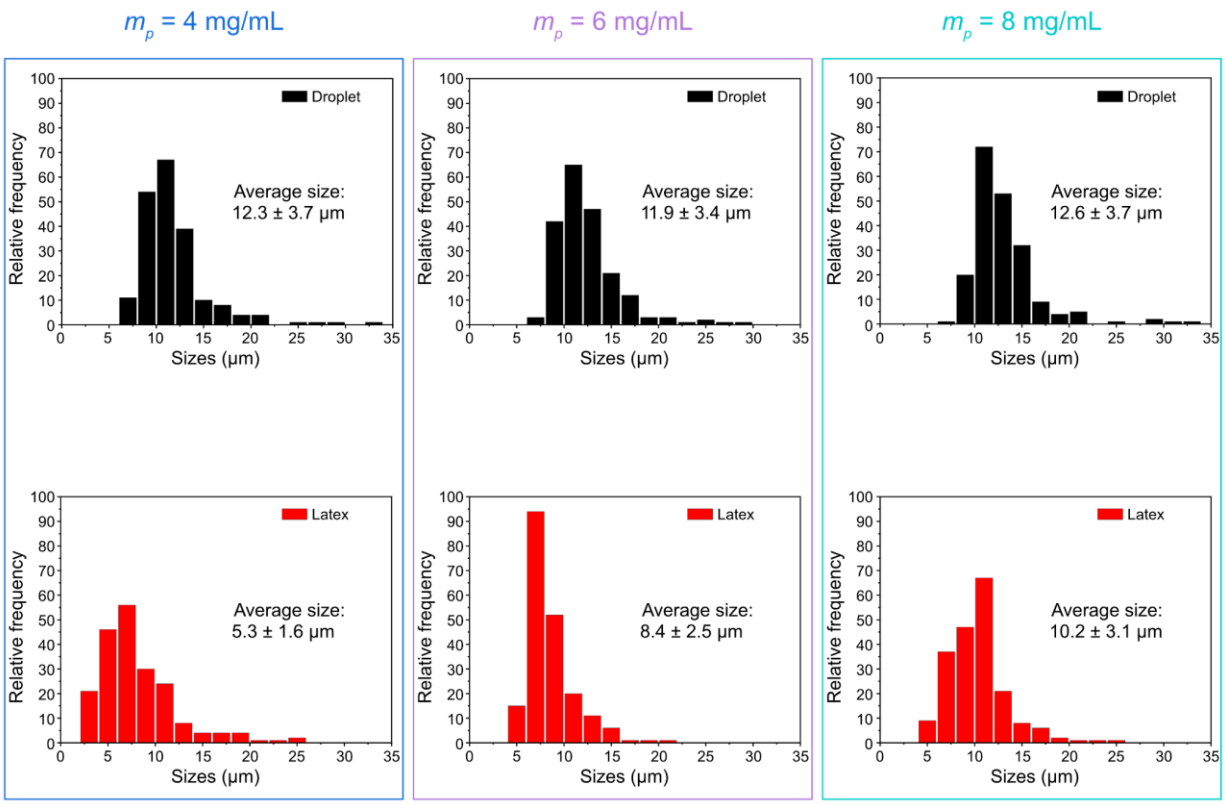

Fig. S3. Size histogram of the HCC/siloxane amine emulsion droplets and WNIPU latexes with CNC concentrations (m_p) of 4, 6, and 8 mg/mL measured from confocal laser scanning microscopy images.

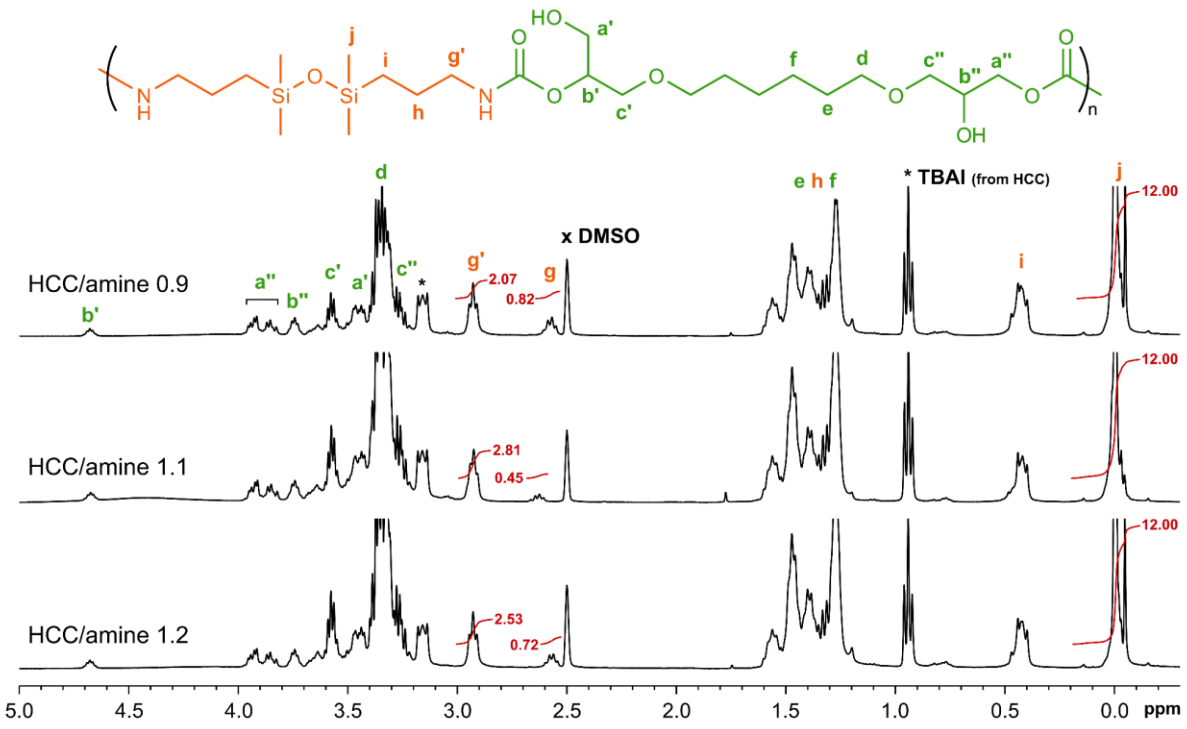

Fig. S4. ^{1}H NMR spectra of the dried WNIPU latexes in DMSO-d_6: $CDCl_3$ (1:1 v/v) with varied HCC/amine ratio of 0.9, 1.1, and 1.2.

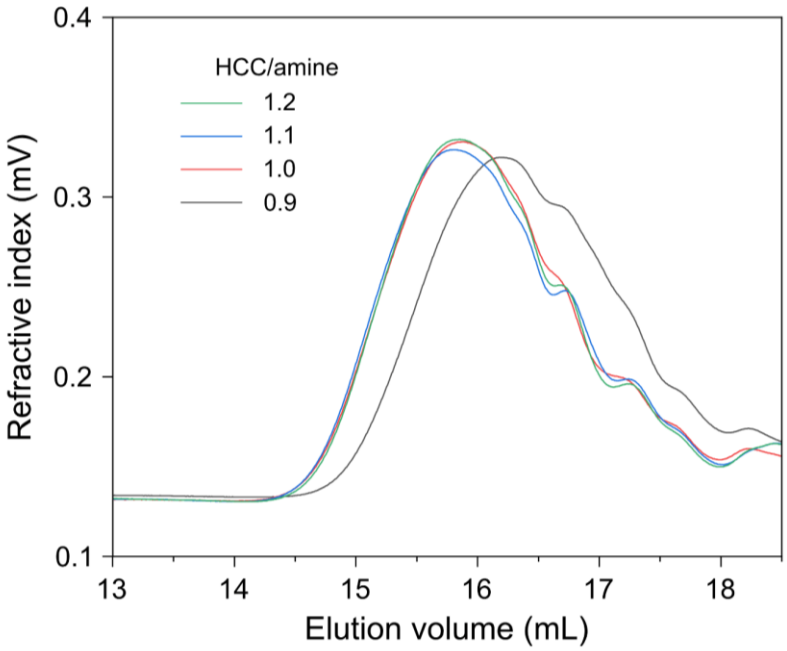

Fig. S5. Effect of HCC/amine ratio on molecular weight distribution measured by SEC.

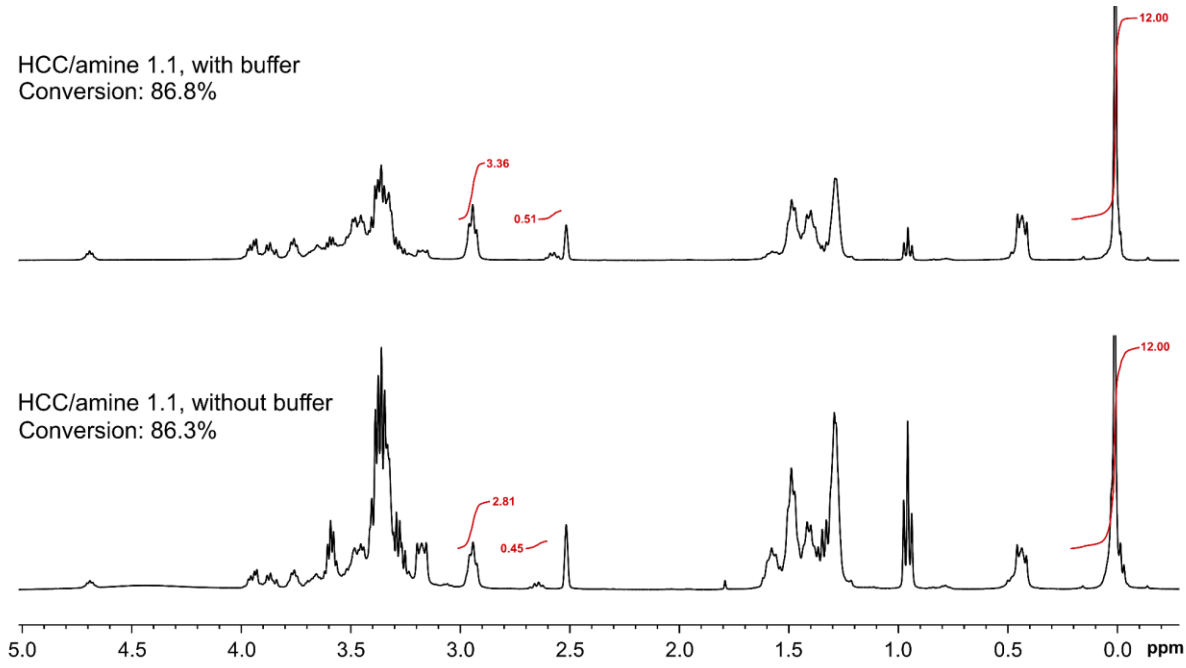

Fig. S6. ^{1}H NMR spectra of the WNIPU (CC/amine ratio of 1.1) polymerized (a) without and (b) with ammonium hydroxide buffer at pH 10.

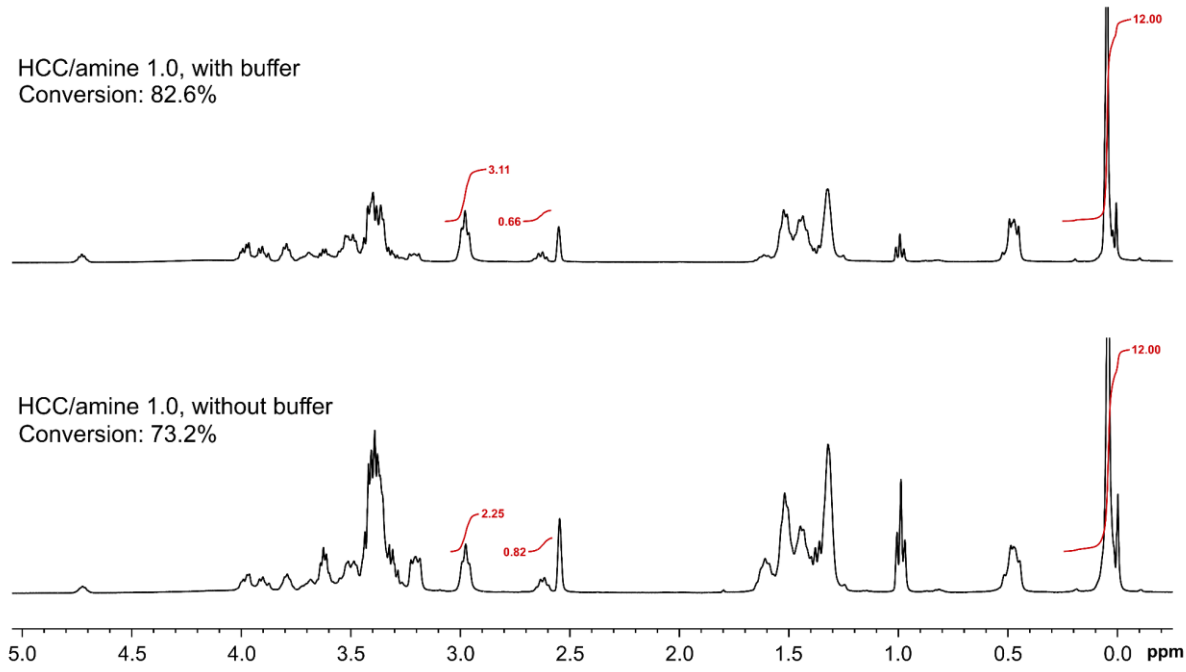

Fig. S7. ^{1}H NMR spectra of the WNIPU (CC/amine ratio of 1.0) polymerized (a) without and (b) with ammonium hydroxide buffer at pH 10.