ELECTRONIC SUPPLEMENTARY INFORMATION

for

Specific water uptake of thin films from nanofibrillar cellulose

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Contents:

Table S1 A set of repeated experiments of the properties of the NFC thin films: dry mass of NFC in a film, QCM-D response during H_2O/D_2O exchange and the corresponding amount of water bound by the swollen NFC film, and water retention value (WRV) of the film.

Γ_{NFC}* (mg/m^2)	H_2O/D_2O exchange, $\Delta f_3/3$	Γ_{H2O} ** (mg/m^2)	WRV ($\Gamma_{H2O}/\Gamma_{NFC}$)
8.74	-75.2	18.2	2.08
10.20	-77.8	22.5	2.20
5.64	-73.1	14.6	2.58
11.25	-74.4	16.7	1.49
13.20	-83.6	32.0	2.43
3.60	-73.1	14.7	4.08
6.45	-73.7	15.6	2.42
12.36	-80.0	26.1	2.11
6.44	-73.1	14.7	2.28
13.83	-78.9	24.2	1.75
6.23	-73.6	15.5	2.50
4.65	-73.1	14.7	3.17
7.80	-74.3	16.7	2.14
18.08	-91.7	45.4	2.51
6.46	-73.5	15.3	2.37
3.87	-73.1	14.7	3.80
7.64	-75.3	18.2	2.38
3.15	-73.1	14.6	4.65
9.60	-74.3	16.7	1.74
7.50	-74.0	16.2	2.16
10.35	-77.9	22.6	2.18
6.15	-73.3	15.0	2.43
8.12	-74.3	16.7	2.06
7.55	-73.8	15.8	2.10
3.58	-74.3	16.7	4.66
7.80	-74.7	17.2	2.21
6.14	-74.1	16.3	2.66
8.85	-75.2	18.2	2.05
6.03	-74.3	16.6	2.76

*) According to Sauerbrey equation from the difference between the f_0 of the crystal before and after the film deposition.

**) According to Eq. 2 and 3 presented in the actual article.

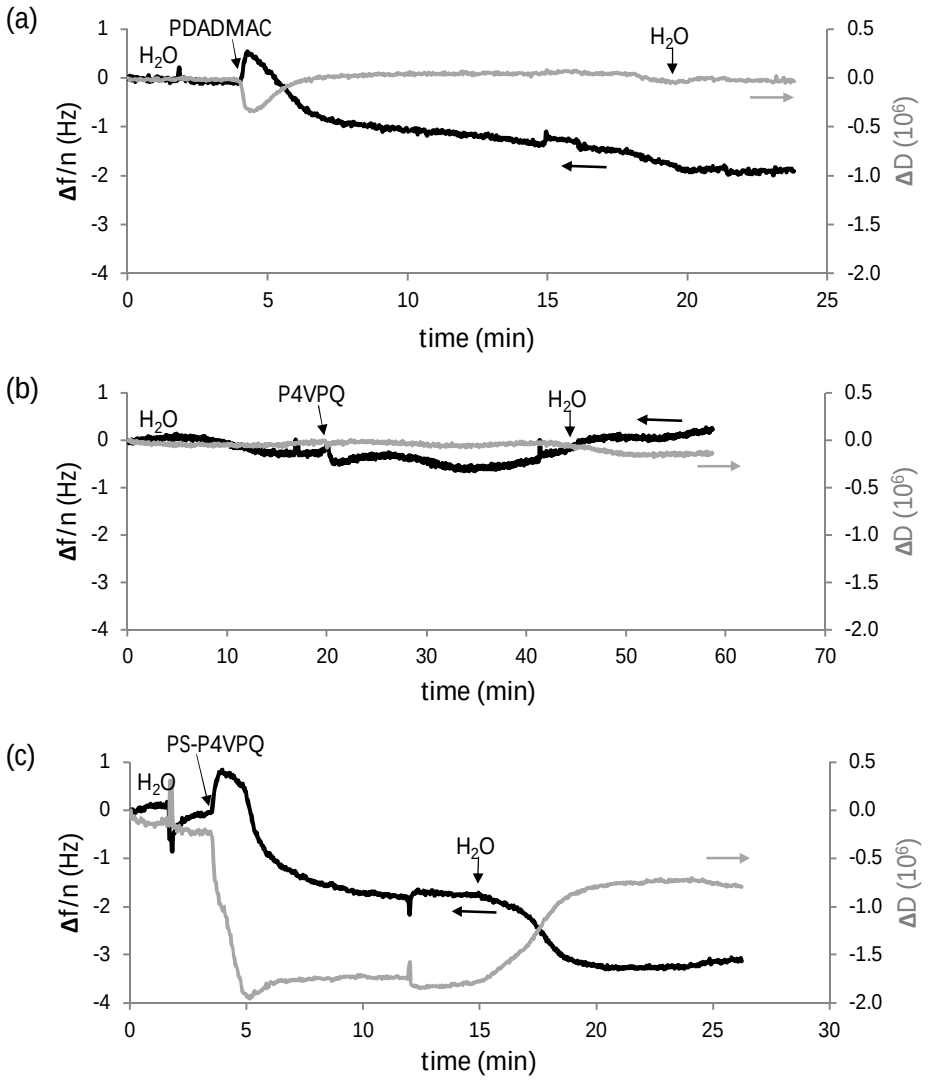

Fig. S1 QCM-D raw data (3rd overtone) of adsorption of (a) PDADMAC, (b) P4VPQ, and (c) PS-P4VPQ on ultrathin film of NFC from 0.1 g/l solution and subsequent rinsing with water. The arrows illustrate the moment of injection of the new solution.

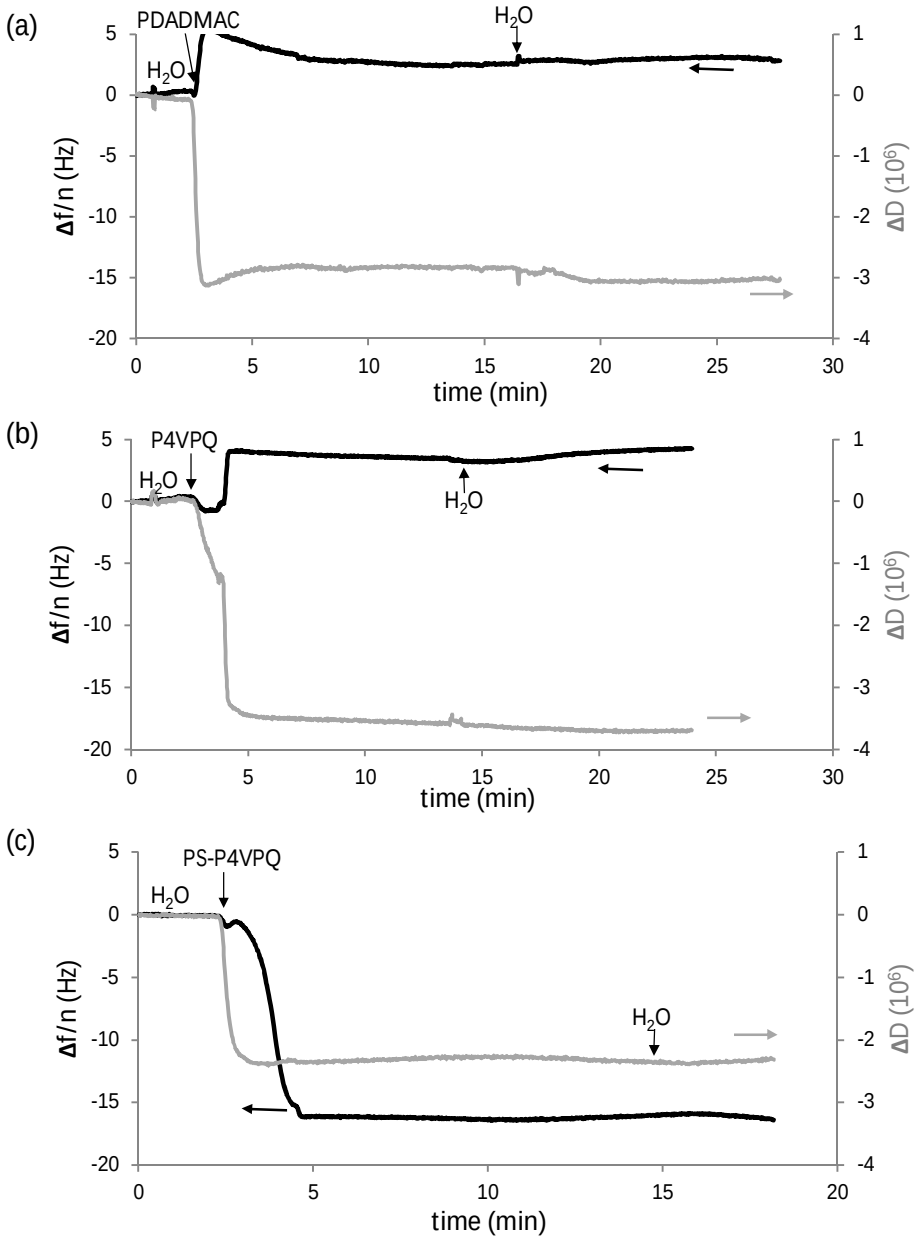

Fig. S2 QCM-D raw data (3rd overtone) of adsorption of (a) PDADMAC, (b) P4VPQ, and (c) PS-P4VPQ on ultrathin film of CMC-modified NFC from 0.1 g/l solution and subsequent rinsing with water. The arrows illustrate the moment of injection of the new solution.

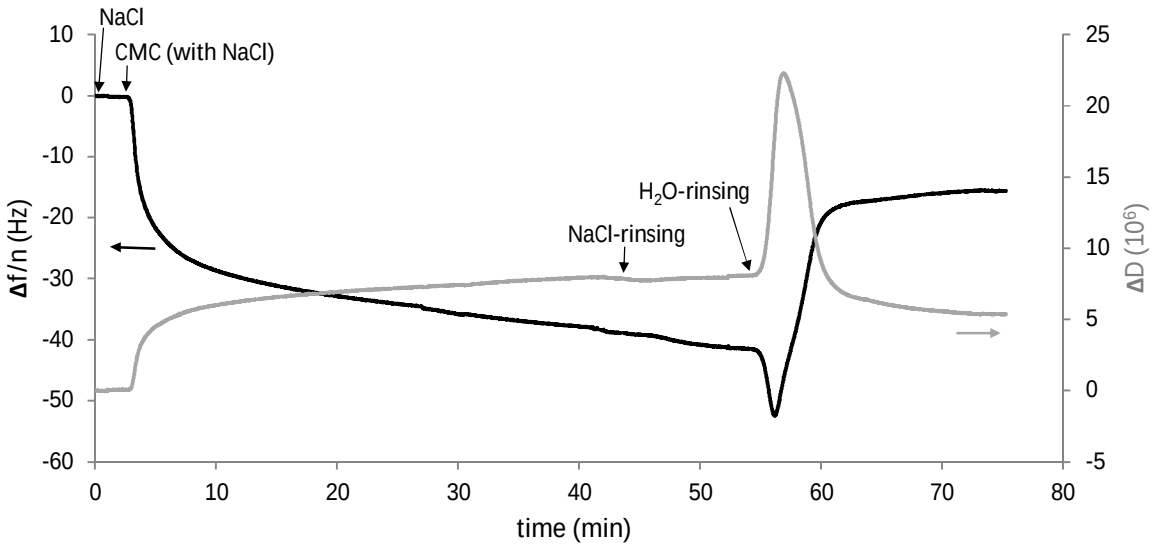

Fig. S3 QCM-D raw data (3rd overtone) of adsorption of CMC on ultrathin film of NFC from 0.2 g/l solution with 50 mM NaCl and subsequent rinsing with water. The arrows illustrate the moment of injection of the new solution.

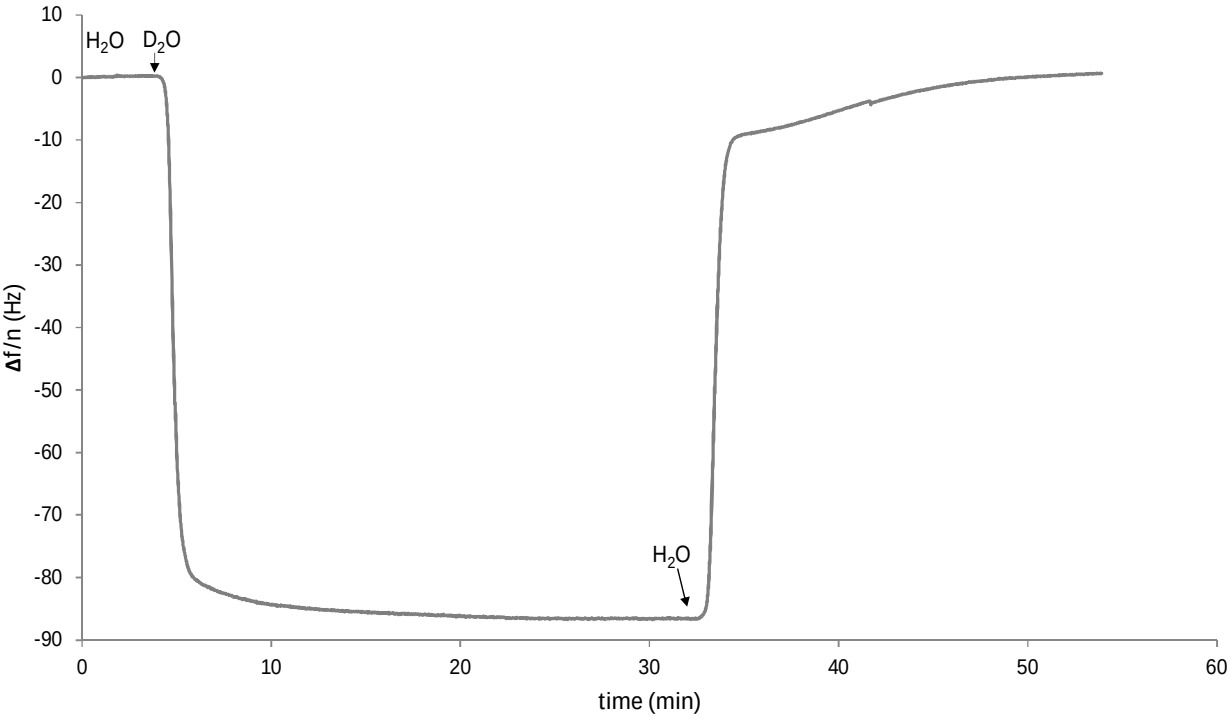

Fig. S4 QCM-D raw data (3rd overtone) of H_2O/D_2O solvent exchange for an ultrathin film of CMC-modified NFC (CMC adsorbed on NFC film from 0.2 g/l solution with 50 mM NaCl and subsequently rinsed with water). The arrows illustrate the moment of injection of the new solvent.