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Tunable wettability via counterion exchange of the polyelectrolyte brushes grafting on cotton fabric

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Table S1. The CA of the PMETAC films in different solvents.

H_2O/CH_3OH(V/V)		1/0	3/1	1/1	1/3	0/1
CA(°)in different solvents	PFO	152	153	154	154	154
	SCN^-	152	150	< 5	< 5	< 5

Five volume ratios of H_2O and CH_3OH were selected to study the wettability change of PMETAC films bearing with PFO and SCN^- respectively. We found that when the volume ratio of H_2O/CH_3OH was 3/1, the wettability of the PMETAC films after exchange from PFO to SCN^- showed almost no change. However, the wettability switch can be realized when the volume ratio CH_3OH was further increased. In H_2O and CH_3OH mixture, when the ratio of CH_3OH was too low, the poorly solvated PFO ions mainly surrounded by water molecule and the counterion exchange from PFO to SCN- was incomplete, so the wettability showed little change. While the volume ratio of CH_3OH increased, the reversible switch of PMETAC film can be achieve.

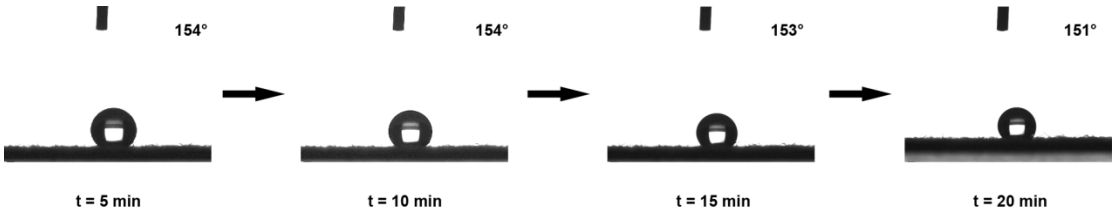

Figure S1. The stability of the CA on the PMETAC films bearing with PFO immersing in CH_3OH/H_2O (V/V: 1/1) mixture.

The CA values were measured at room temperature (about 22 ℃) and the relative humidity was about 40 %. The stability of the CA was measured on the same sample when a water droplet was deposited on the surface after 1 min up to 20 min.