

Supplementary Information

Modular Approach toward Multi-Functional Surfaces with Adjustable and Dual-Responsive Wettability Using a Hybrid Polymer Toolbox

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Figure S1.

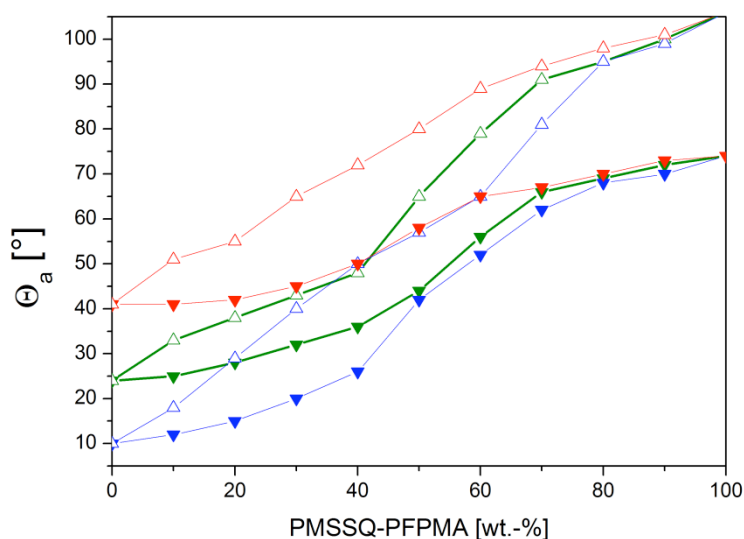


Figure S1. Different mixtures of PMSSQ-PFPMA (R_A) and PMSSQ-PPVB (R_C) were spin-coated onto Si, after conversion with (1) 4-benzoic acid methyl azide and (2) isopropylamine, the advancing contact angles were measured at different temperatures (filled symbols: $T = 15\text{ }^{\circ}\text{C}$, free symbols: $T = 60\text{ }^{\circ}\text{C}$). Green lines measured at $\text{pH} = 7$, red lines measured at $\text{pH} = 2$, blue lines measured at $\text{pH} = 11$.

Figure S2.

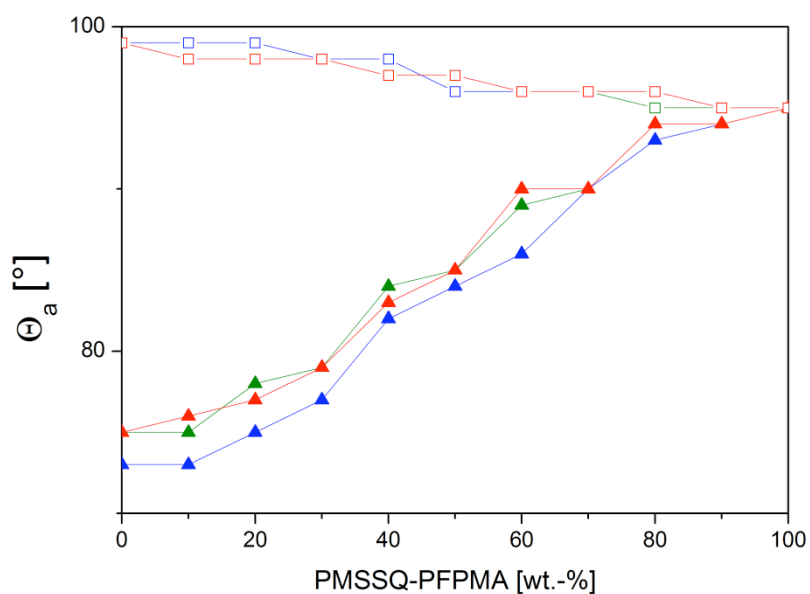


Figure S2. Advancing contact angles of water on silicon surfaces after applying different mixtures of two reactive coating materials. Upper graphs: Mixtures of PMSSQ-PFPVB and PMSSQ-PFPMA (wt.-% PMSSQ-PFPMA between 0% and 100%), green: pH = 7; red: pH = 2; blue: pH = 11. Lower graphs: Mixtures of PMSSQ-PPVB and PMSSQ-PFPMA, green: pH = 7; red: pH = 2; blue: pH = 11.

Figure S3.

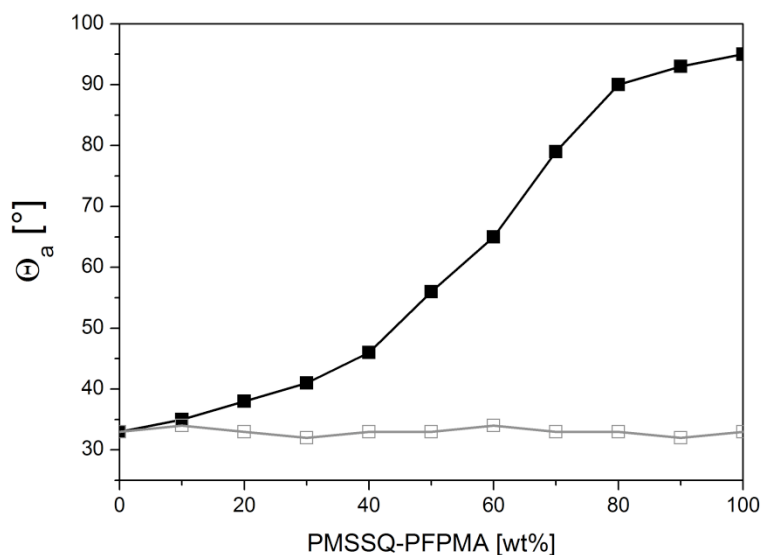


Figure S3. A series of mixtures of PMSSQ-PFPMA and PMSSQ-PPVB were spin coated on silicon wafers. First the cycloaddition with PEG-azide was performed and the contact angle was measured (black line), afterwards the dual-reactive surface was converted with PEG-amine yielding a complete PEGylated surface (grey line).

Figure S4.

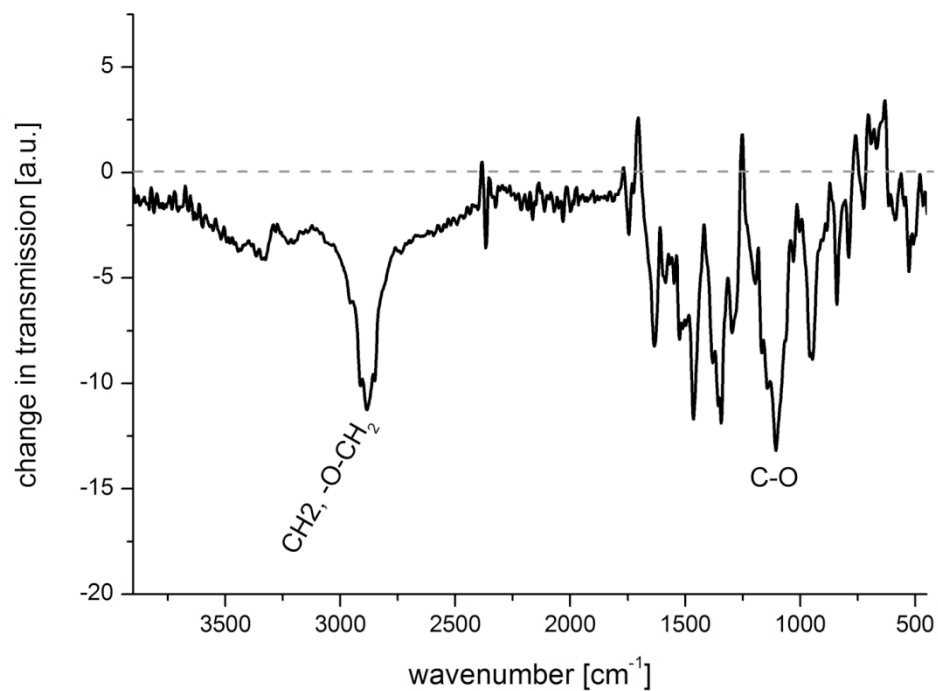


Figure S4. Spectrum 4 subtracted from spectrum 3. New bands appear below the zero line, vanished bands appear above.

Figure S5.

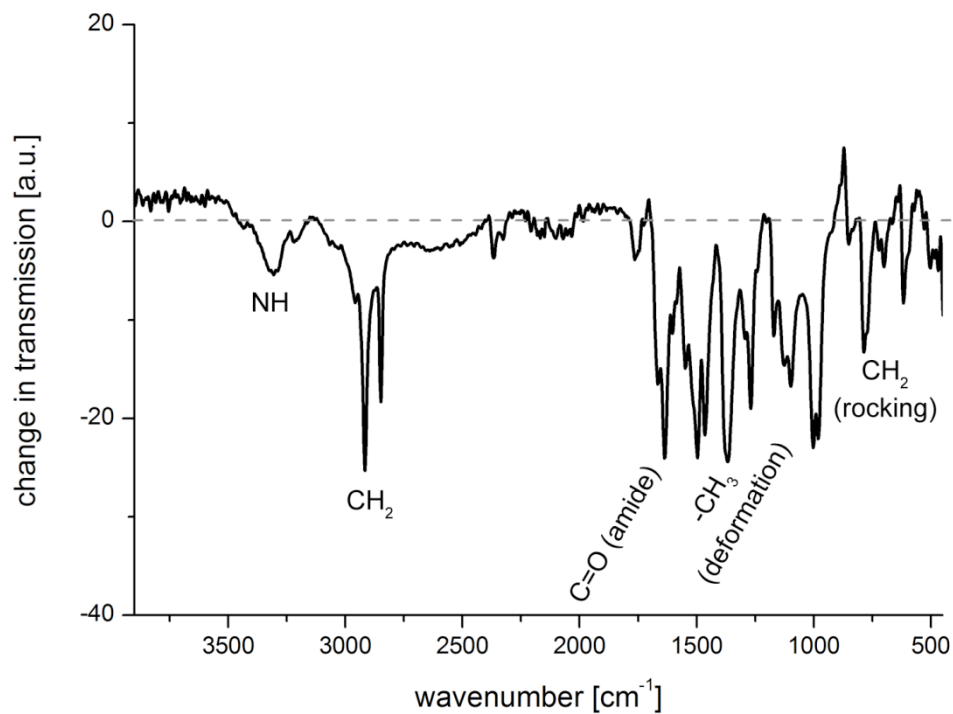


Figure S5. Spectrum 5 subtracted from spectrum 3. New bands appear below the zero line, vanished bands appear above.

Table S1. Obtained advancing and receding contact angles on a triple reactive surface with respect to the functionalization of R_C (R_A functionalized with isopropylamine, R_B functionalized with p-amino benzoic acid).

Function at R_C			Θ_a [°]	Θ_r [°]
PEG	pH 2	15 °C	35	31
		60 °C	54	51
	pH 7	15 °C	33	29
		60 °C	52	50
	pH 11	15 °C	29	14
		60 °C	47	32
acetylene	pH 2	15 °C	61	58
		60 °C	92	88
	pH 7	15 °C	59	55
		60 °C	91	84
	pH 11	15 °C	53	34
		60 °C	87	59
Stearic acid	pH 2	15 °C	103	99
		60 °C	115	106
	pH 7	15 °C	99	94
		60 °C	110	100
	pH 11	15 °C	73	39
		60 °C	100	64