ELECTRONIC SUPPLEMENTARY INFORMATIONS (ESI)

Silicate Glass Coated Microchannels through Phase Conversion Process for Glass-Like Electrokinetic Performance

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Scheme S1 Molecular structures of (a) photo initiator (Irgacure 369), and (b) thermal initiator (dicumyl peroxide).

(a)

\[
\begin{array}{c}
\text{CH}_3 \\
\text{O} \\
\text{O} \\
\text{CH}_3 \\
\text{CH}_3 \\
\text{CH}_3
\end{array}
\]

Irgacure 369

(b)

\[
\begin{array}{c}
\text{H}_3\text{C} \\
\text{N} \\
\text{CH}_2 \\
\text{O} \\
\text{N} \\
\text{O} \\
\text{CH}_3 \\
\text{CH}_3 \\
\text{CH}_3
\end{array}
\]

dicumyl peroxide

Scheme S2 Mechanism of SiOH induced redistribution of Si-O and Si-C bond during hydrolysis of AHPCS under alkali condition.\(^1\)
**Fig. S1** ATR spectra of AHPCS film (600 nm-thick) (a) before and (b) after hydrolysis (0.5 M NaOH, 3 h at 25 °C).

**Fig. S2** SEM image of AHPCS coating on polyimide (PI) film (1 wt. % in cyclohexanone, cured under ELC-4100 UV light system (20 mW/cm²) for 20 min).

**Fig. S3** AFM images of (a) cured AHPCS film and (b) hydrolyzed AHPCS film.
Fig. S4 CE reproducibility test conducted by 13 times injection of 10 μM FITC-Phe into (a) AHPCS derived silicate glass coated PDMS channel and (b) native PDMS channel aged for 1 week at room temperature after plasma bonding.

Fig. S5 Retention time variation upon 100 times repeated injection of 10 μM FITC-Phe into AHPCS derived silicate glass coated PDMS channel (Laplace pressure effect of the round-shape reservoirs on the peak intensity was not considered during the multiple injections and separations).

SI Reference