

## Supporting information

### Synthesis and characterization of novel crosslinkable side-chain sulfonated poly(arylene ether sulfone) copolymer proton exchange membranes

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Table s1. GPC data of S-PAES(1/1)-OCH<sub>3</sub>, S-PAES(1/2)-OCH<sub>3</sub> and S-SPAES(2/3)-OCH<sub>3</sub>.

Membrane	S-SPAES(1/1)-OCH <sub>3</sub>	S-SPAES(1/2)-OCH <sub>3</sub>	S-SPAES(2/3)-OCH <sub>3</sub>
Peak RV - (ml)	16.017	15.537	15.853
Mn - (Daltons)	45,738	40,042	42,833
Mw - (Daltons)	80,132	64,306	68,649
Mz - (Daltons)	117,373	106,305	140,616
Mp - (Daltons)	57,459	62,266	72,836
Mw / Mn	1.752	1.606	1.604

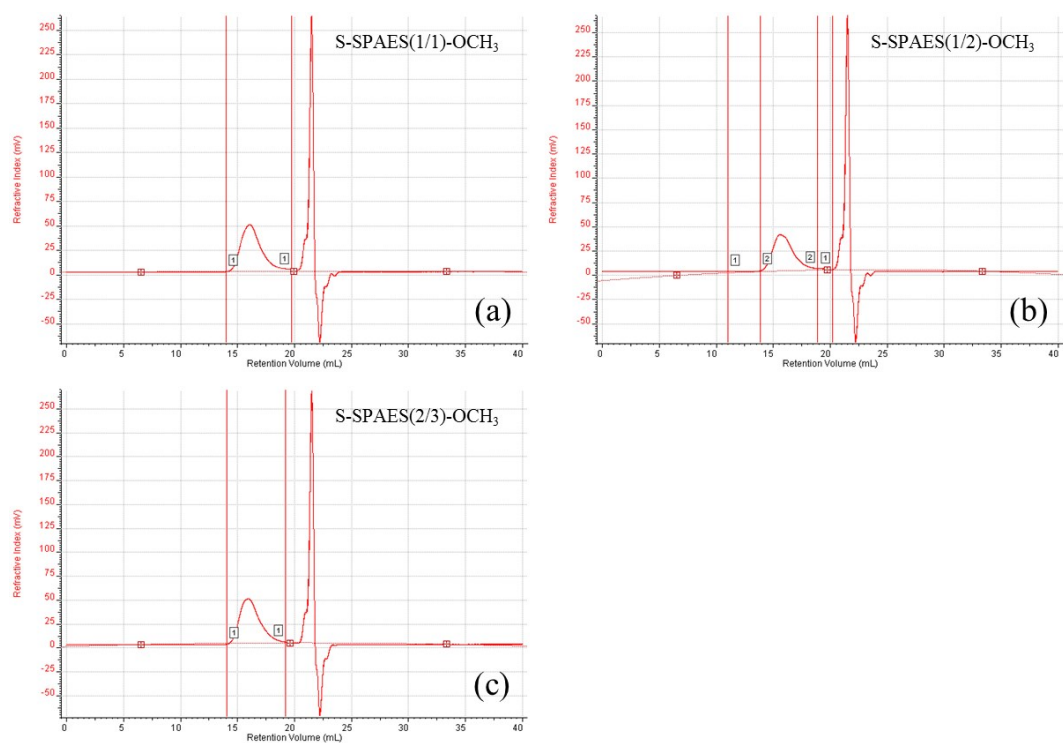


Figure s1. GPC spectra of (a) S-PAES(1/1)-OCH<sub>3</sub>, (b) S-PAES(1/2)-OCH<sub>3</sub> and (c) S-SPAES(2/3)-OCH<sub>3</sub>.

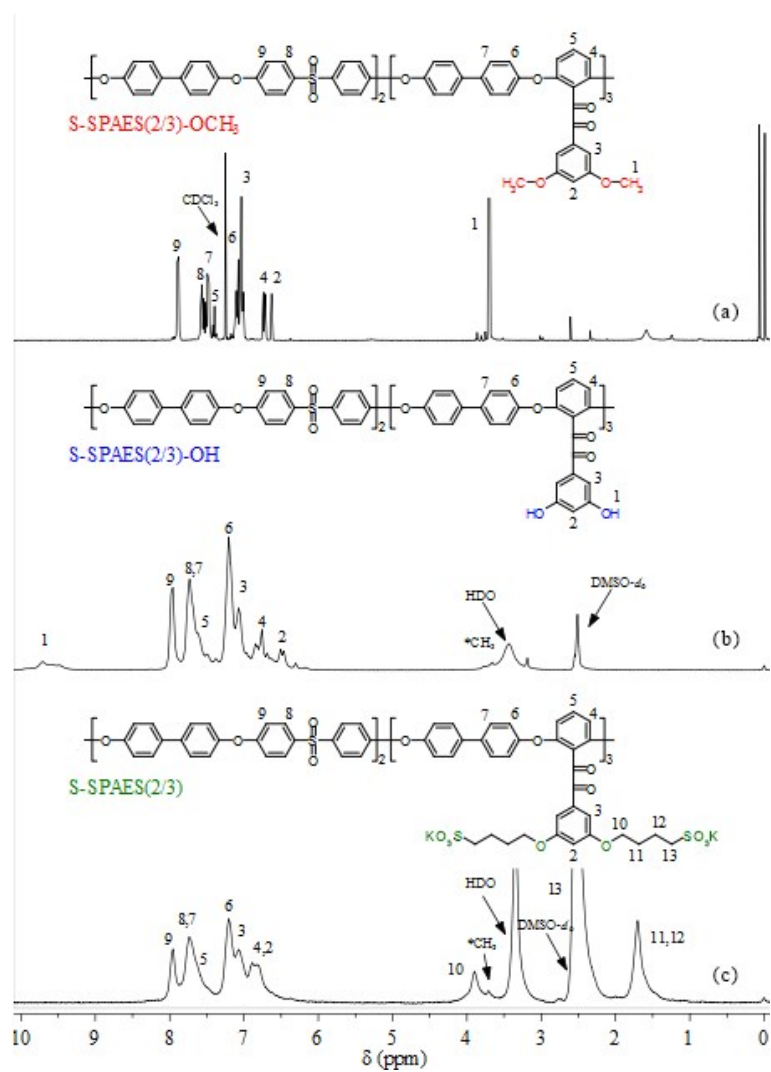


Figure s2.  $^1\text{H}$  NMR spectra of (a) S-PAES(2/3)-OCH<sub>3</sub>, (b) S-PAES(2/3)-OH and (c) S-SPAES(2/3).

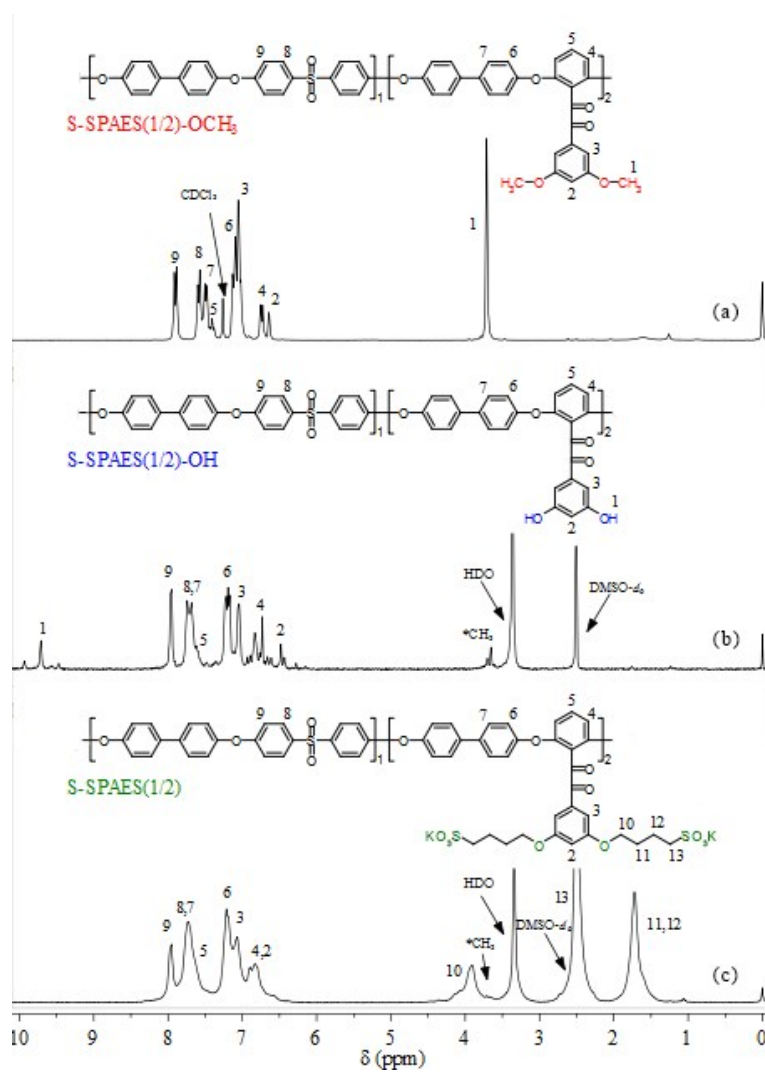


Figure s3.  $^1\text{H}$  NMR spectra of (a) S-PAES(1/2)-OCH<sub>3</sub>, (b) S-PAES(1/2)-OH and (c) S-SPAES(1/2).

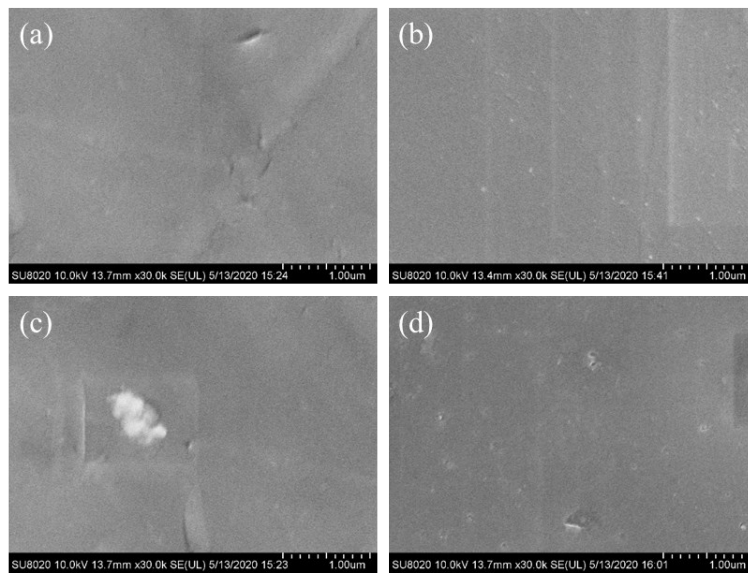


Figure s4. SEM micrographs of surfaces for the membranes. (a) CS-SPAES(1/1), (b) S-SPAES(1/1), (c) CS-SPAES(1/2) and (d) S-SPAES(1/2).