Supplementary materials

Polystyrene-Based Hydroxide-Ion-Conducting Ionomer: Binder Characteristics and Performance in Anion-Exchange Membrane Fuel Cells

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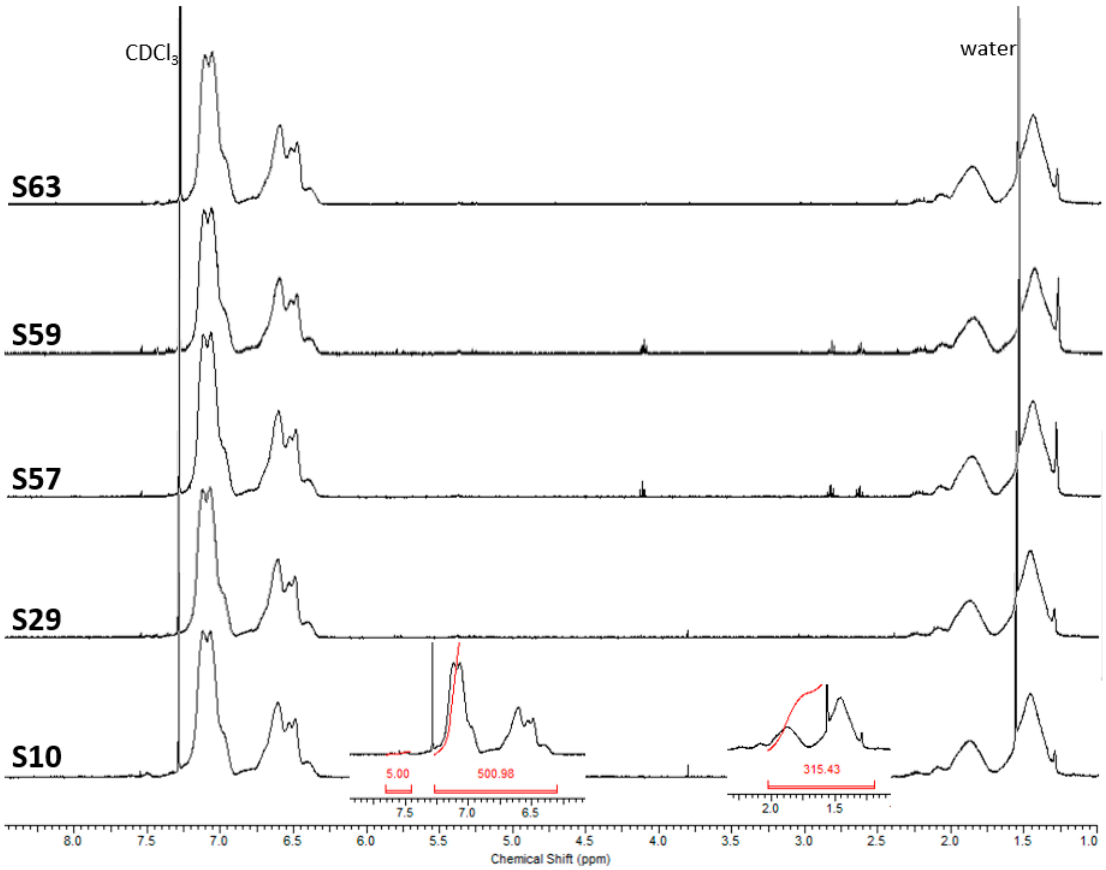

Figure S1. ^{1}H NMR spectra of ionomers with various polystyrene backbones (S*xx*), where S stands for pol ystyrene and *xx* stands for the number average molecular weight (M_n = *xx* × 10^3 g mol^{-1}).

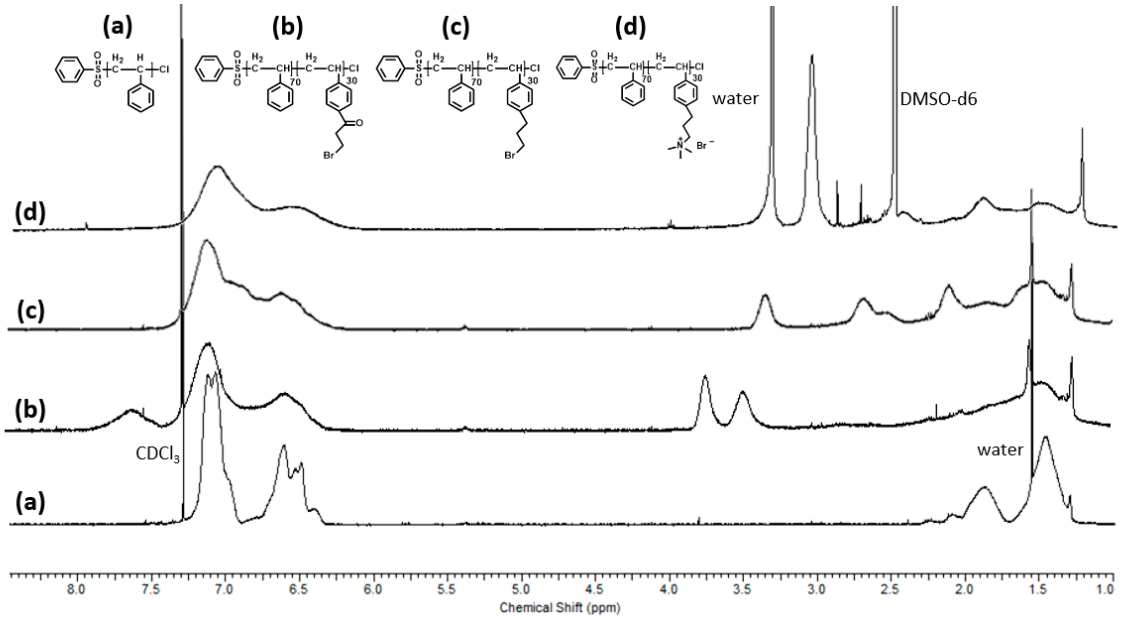

Figure S2. ^{1}H NMR spectra ((**a–c**) in $CDCl_3$ and (**d**) in DMSO-d_6) of compounds produced during the synt hesis of S29QA30-C3. (**a**) S29, (**b**) S29BAC30-C3, (**c**) S29BAK30-C3, (**d**) S29QA30-C3.

Figure S3. Images of bromide-form S29QA30-C6 membrane fragments.

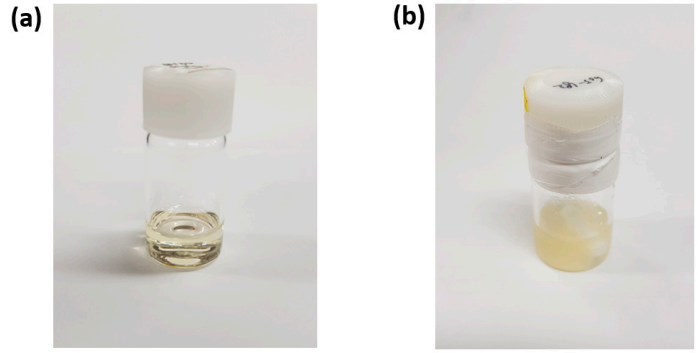

Figure. S4. Images of (**a**) S29A30-C6 and (**b**) S63QA30-C6 ionomer dispersions.

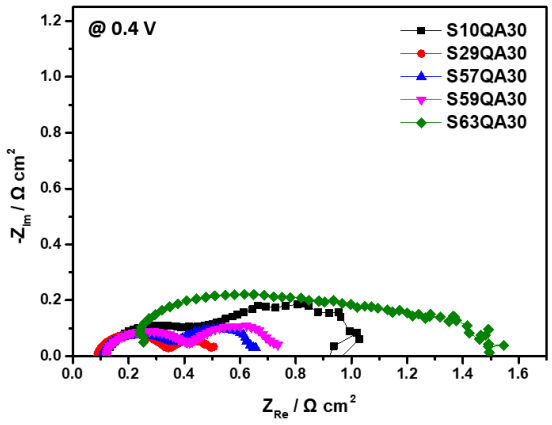

Figure S5. Effects of ionomer molecular weight on EIS spectra measured by 0.4 V.

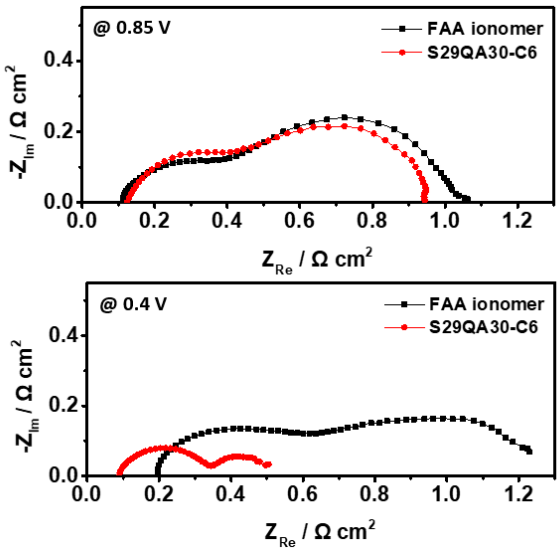

Figure S6. EIS spectra measured at 0.85 V and 0.4 V for comparison between MEAs based on the commer cial ionomer (Fumion FAA-3 solution) and S29QA30-C6 ionomer.