

Supplemental Section

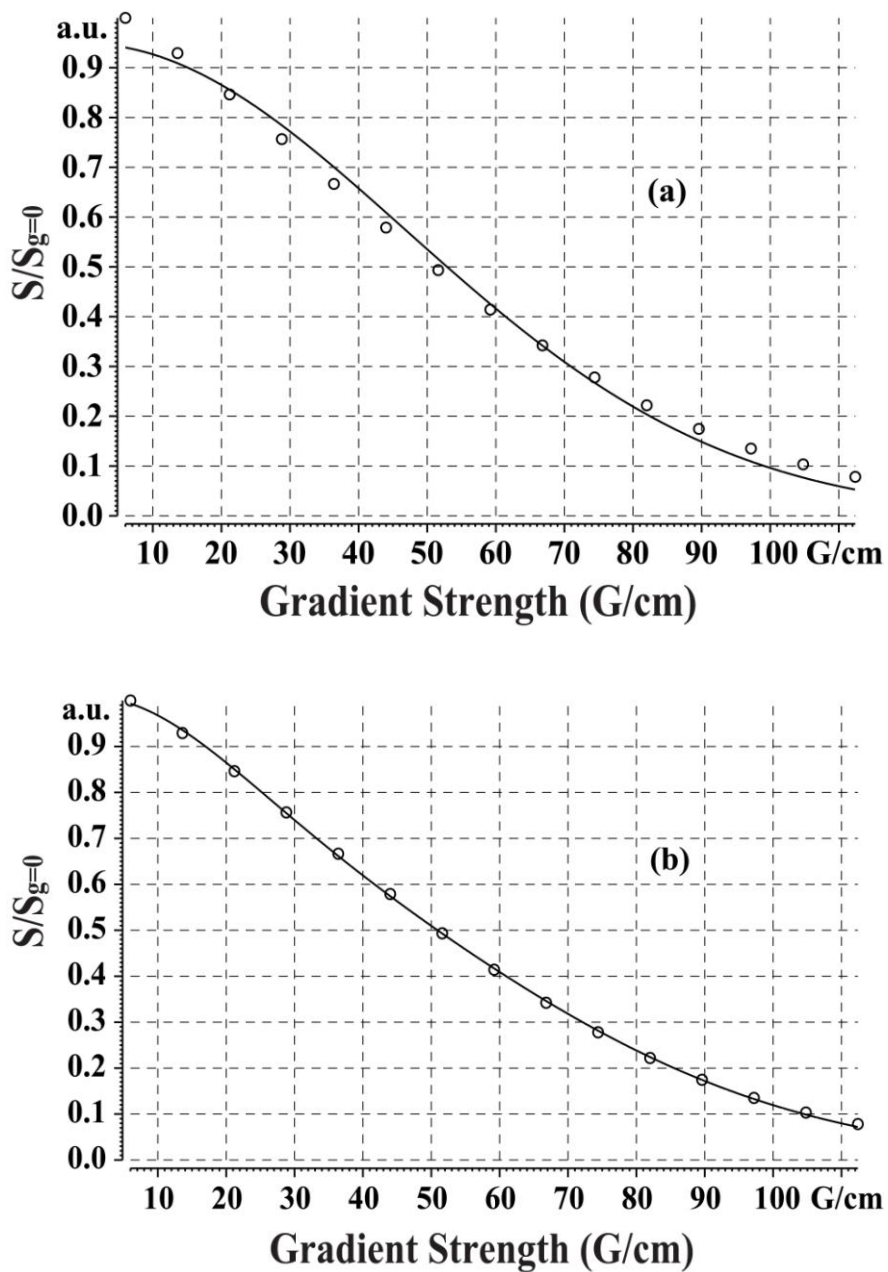


Figure 1. The PFG-NMR experimental fitting data of the Gore-800S membrane prepared under water vapor (98%) relative humidity controlled condition at 298 K. (a) a one component fit (b) a two-component fit

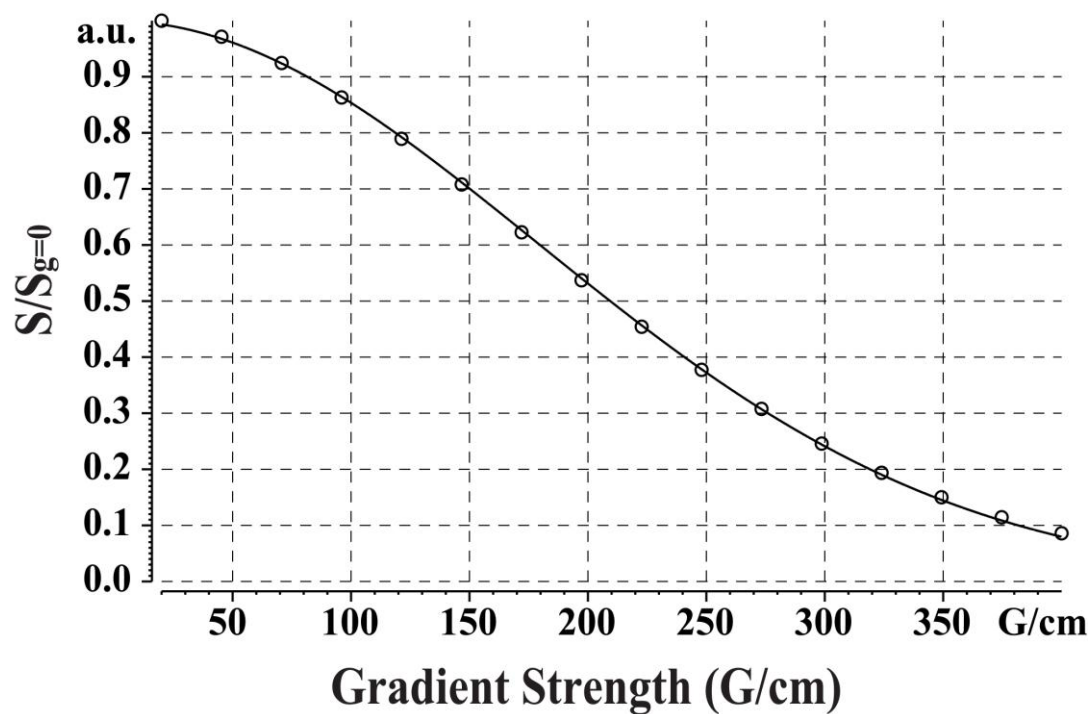


Figure 2. The PFG-NMR experimental fitting data of the Gore-800S membrane prepared under water vapor (98%) relative humidity controlled condition at 239 K with one component fit.

Table 1. Proton self-diffusion coefficients D ($10^{-11} \text{ m}^2/\text{s}$) of Gore-800S, Gore-800 and Nafion117 at H_2O 98%RH controlled condition

T(K)	T ($^{\circ}\text{C}$)	Gore-800S (1D)	Gore-800S (2a main)	Gore-800	Nafion-117
297.8	24.7	63.99	53.49	72.42	39.83
283.8	10.7	41.67	36.75	49.79	27.41
270.0	-3.2	24.71	26.59	27.25	17.49
263.0	-10.0	17.88	19.51	19.76	13.56
254.2	-19.0	11.01	11.46	11.89	9.11
239.3	-33.9	4.44	4.62	5.07	3.70

Table 2. Proton self-diffusion coefficients D ($10^{-11} \text{ m}^2/\text{s}$) of Gore-800S, Gore-800 and Nafion117 at KBr 79%RH controlled condition

T(K)	T ($^{\circ}\text{C}$)	Gore-800S (1D)	Gore-800S (2a main)	Gore-800	Nafion-117
297.8	24.7	43.95	35.92	42.00	23.38
283.8	10.7	28.79	24.77	28.60	15.82
270.0	-3.2	17.54	21.88	17.75	10.16
263.0	-10.0	13.98	15.95	14.41	
254.2	-19.0	9.44	9.88	9.68	5.76
239.3	-33.9	4.10	2.12	4.62	2.85

Table 3. Proton self-diffusion coefficients D ($10^{-11} \text{ m}^2/\text{s}$) of Gore-800S, Gore-800 and Nafion117 at NaBr 58%RH controlled condition

T(K)	T (°C)	Gore-800S (1D)	Gore-800S (2a main)	Gore-800	Nafion-117
297.8	24.7	24.00	20.98	23.82	16.42
283.8	10.7	15.83	13.70	16.05	10.87
270.0	-3.2	9.59	8.91	9.90	6.63
263.0	-10.0	7.55	8.17	7.97	5.26
254.2	-19.0	5.11	5.41	5.50	3.61
239.3	-33.9	2.43	2.53	3.34	1.67

Table 4. Proton self-diffusion coefficients D ($10^{-11} \text{ m}^2/\text{s}$) of Gore-800S, Gore-800 and Nafion117 at MgCl_2 34%RH controlled condition

T(K)	T (°C)	Gore-800S (1D)	Gore-800S (2a main)	Gore-800	Nafion-117
297.8	24.7	10.44	9.46	10.31	6.58
283.8	10.7	6.73	5.56	6.75	4.09
270.0	-3.2	3.92	4.37	3.91	2.33
263.0	-10.0	3.02	3.21	3.05	1.80
254.2	-19.0	2.00	2.12	2.01	1.18
239.3	-33.9	0.90	0.94	1.79	0.52

Table 5. Proton self-diffusion coefficients D ($10^{-11} \text{ m}^2/\text{s}$) of Gore-800S, Gore-800 and Nafion117 at LiCl 12%RH controlled condition

T(K)	T (°C)	Gore-800S (1D)	Gore-800S (2a main)	Gore-800	Nafion-117
297.8	24.7	2.06	2.34	2.09	1.27
283.8	10.7	1.21	1.36	1.20	0.69
270.0	-3.2	0.62	0.65	0.61	0.33
263.0	-10.0	0.45	0.48	0.45	0.24
254.2	-19.0	0.26	0.28	0.27	0.13
239.3	-33.9	0.08	0.10	0.09	0.03