

Supporting Information

Threshold method in the analysis of catalyst layer porosity towards oxygen transport resistance in proton exchange membrane fuel cells

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Table S1. Total oxygen transport resistance of CCMs with different Pt loadings and ionomer contents under different pressures.

Cathode		R_{total}				Cathode		R_{total}			
Pressure						Pressure					
Pt loading		(s cm ⁻¹)				Pt loading		(s cm ⁻¹)			
(mg cm ⁻²)	(kPa)	I/C=0.3	I/C=0.5	I/C=0.7	I/C=0.9	(mg cm ⁻²)	(kPa)	I/C=0.3	I/C=0.5	I/C=0.7	I/C=0.9
0.4	101	0.964	0.997	0.728	2.595	0.3	101	1.067	1.040	0.855	4.721
	150	1.456	1.424	1.149	3.418		150	1.569	1.507	1.297	5.642
	200	1.882	1.908	1.555	3.977		200	2.041	1.920	1.705	7.316
	250	2.292	2.298	1.928	4.441		250	2.464	2.339	2.160	8.123
0.2	101	1.076	1.288	2.974	7.623	0.1	101	1.467	1.922	3.462	7.120
	150	1.606	1.808	4.008	9.762		150	2.026	2.436	4.422	9.267
	200	1.985	2.207	4.636	10.636		200	2.462	3.006	5.221	9.950
	250	2.356	2.678	5.194	11.932		250	2.916	3.288	5.857	11.266

Table S2. Relative parameters of the threshold method.

Cathode Pt	I/C	Range of	Threshold	H ₂ flow	Air flow	Cathode Pt	I/C	Range of	Threshold	H ₂ flow	Air flow
loading	ratio	<i>I-V</i> sweep	point	rate	rate	loading	ratio	<i>I-V</i> sweep	point	rate	rate
(mg cm ⁻²)		(A cm ⁻²)	(A cm ⁻²)	(ml min ⁻¹)	(ml min ⁻¹)	(mg cm ⁻²)		(A cm ⁻²)	(A cm ⁻²)	(ml min ⁻¹)	(ml min ⁻¹)
0.4	0.3	0-0.800	0.394	40	200	0.3	0.3	0-0.720	0.420	40	200
	0.5	0-0.700	0.640	40	200		0.5	0-0.700	0.416	40	200
	0.7	0-0.840	0.793	40	200		0.7	0-0.800	0.279	40	200
	0.9	0-0.400	0.352	40	200		0.9	0-0.244	0.165	50	250
0.2	0.3	0-0.700	0.492	40	200	0.1	0.3	0-0.540	0.510	40	200
	0.5	0-0.620	0.398	40	200		0.5	0-0.500	0.440	50	250
	0.7	0-0.360	0.314	40	200		0.7	0-0.280	0.213	40	200
	0.9	0-0.200	0.147	40	200		0.9	0-0.220	0.165	40	200