

Supplementary materials

Table 1S. Membrane properties (thickness and conductivity) before and after EDBM carried out in different conditions of flow rate (corresponding to indicated Reynolds numbers) and PEF current mode with pulse-pause durations of 10 s - 10 s, 10 s - 20 s, 10 s - 33 s and 10 s - 50 s. Reynolds numbers of 187, 374 and 560 correspond to flow rates of 7.8, 15.6 and 23.4 cm/s respectively.

Current mode			10 s-10 s			10 s-20 s			10 s-33 s			10 s-50 s		
Reynolds number			187	374	560	187	374	560	187	374	560	187	374	560
Conductivity (mS/cm)	CEM	Before	8.87 ±	9.01 ±	8.39 ±	8.58 ±	8.99 ±	8.87 ±	9.02 ±	8.64 ±	8.64 ±	9.32 ±	8.66 ±	9.17 ±
			0.46 a	0.29 a	0.54 a	0.42 a	0.14 a	0.37 a	0.24 a	0.42 a	0.24 a	0.14 a	0.42 a	0.40 a
		After	7.99 ±	8.05 ±	8.01 ±	8.20 ±	8.08 ±	7.90 ±	8.11 ±	7.73 ±	7.93 ±	8.63 ±	8.05 ±	8.15 ±
			0.49 bA	0.31 bA	0.46 bA	0.31 bA	0.09 bA	0.10 bA	0.38 bA	0.40 bA	0.46 bA	0.31 bB	0.24 bB	0.21 bB
	BPM 1	Before	6.02 ±	5.51 ±	5.12 ±	4.86 ±	4.97 ±	4.97 ±	5.23 ±	5.47 ±	4.69 ±	5.54 ±	4.53 ±	5.11 ±
			0.89 a	0.72 a	0.38 a	1.23 a	0.76 a	0.60 a	1.14 a	0.21 a	0.63 a	1.01 a	0.14 a	0.98 a
		After	6.49 ±	5.96 ±	6.13 ±	6.32 ±	5.83 ±	5.61 ±	5.95 ±	6.13 ±	5.61 ±	5.99 ±	5.91 ±	5.54 ±
			0.54 b	0.27 b	0.15 b	0.39 b	0.29 b	0.44 b	0.48 b	0.42 b	0.39 b	0.48 b	0.29 b	0.51 b
	BPM 2	Before	5.46 ±	5.44 ±	4.33 ±	5.52 ±	4.03 ±	4.82 ±	4.93 ±	4.31 ±	5.00 ±	4.41 ±	5.98 ±	5.03 ±
			0.91 a	0.48 a	1.27 a	1.09 a	0.90 a	1.43 a	0.22 a	0.54 a	0.90 a	0.44 a	0.68 a	1.10 a
		After	6.22 ±	6.23 ±	5.41 ±	6.61 ±	5.55 ±	6.21 ±	6.13 ±	5.82 ±	6.21 ±	5.86 ±	6.65 ±	5.87 ±
			0.71 b	0.30 b	1.17 b	0.59 b	0.91 b	0.65 b	0.01 b	0.50 b	0.47 b	0.44 b	0.56 b	0.68 b
Thickness (mm)	CEM	Before	0.151 ±	0.154 ±	0.152 ±	0.149 ±	0.148 ±	0.155 ±	0.154 ±	0.156 ±	0.148 ±	0.153 ±	0.153 ±	0.154 ±
			0.002 a	0.005 a	0.009 a	0.009 a	0.005 a	0.009 a	0.003 a	0.005 a	0.006 a	0.012 a	0.003 a	0.008 a
		After	0.151 ±	0.151 ±	0.156 ±	0.154 ±	0.149 ±	0.155 ±	0.154 ±	0.158 ±	0.151 ±	0.157 ±	0.160 ±	0.152 ±
			0.010 a	0.002 a	0.003 a	0.005 a	0.006 a	0.009 a	0.001 a	0.004 a	0.005 a	0.012 a	0.003 a	0.007 a
	BPM 1	Before	0.245 ±	0.245 ±	0.240 ±	0.243 ±	0.245 ±	0.244 ±	0.249 ±	0.246 ±	0.243 ±	0.241 ±	0.238 ±	0.240 ±
			0.005 a	0.002 a	0.006 a	0.004 a	0.004 a	0.006 a	0.006 a	0.002 a	0.004 a	0.004 a	0.002 a	0.006 a
		After	0.245 ±	0.239 ±	0.242 ±	0.263 ±	0.244 ±	0.247 ±	0.250 ±	0.241 ±	0.243 ±	0.243 ±	0.243 ±	0.242 ±
			0.003 a	0.011 a	0.004 a	0.025 a	0.009 a	0.003 a	0.005 a	0.009 a	0.005 a	0.006 a	0.002 a	0.010 a
	BPM 2	Before	0.243 ±	0.249 ±	0.235 ±	0.245 ±	0.239 ±	0.244 ±	0.240 ±	0.237 ±	0.242 ±	0.236 ±	0.241 ±	0.243 ±
			0.003 a	0.003 a	0.007 a	0.007 a	0.005 a	0.002 a	0.006 a	0.006 a	0.010 a	0.013 a	0.002 a	0.002 a
		After	0.244 ±	0.245 ±	0.239 ±	0.251 ±	0.237 ±	0.244 ±	0.238 ±	0.239 ±	0.243 ±	0.237 ±	0.242 ±	0.242 ±
			0.012 a	0.002 a	0.006 a	0.007 a	0.006 a	0.002 a	0.004 a	0.005 a	0.006 a	0.004 a	0.001 a	0.004 a

*Data marked with different letters (a, b or A, B) differ significantly from each other; lowercase letters indicate differences in conductivity and thickness before and after ED process for the same membrane; uppercase letters indicate differences between the electric current modes for the same membranes