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Electronic Supplementary Information for

Studies on the Effect of Nano-Sized MgO in Magnesium-Ion Conducting Gel Polymer Electrolyte for Rechargeable Magnesium Batteries

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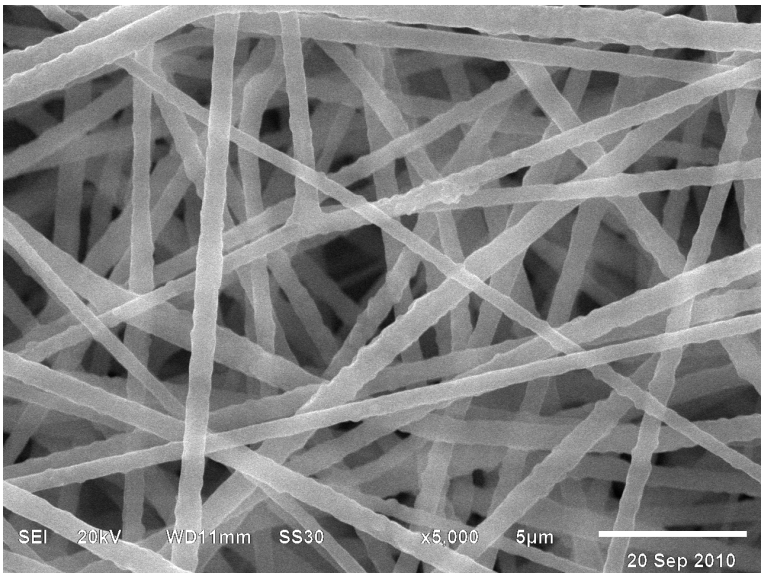

Figure S1. The SEM image of electrospun TPU-PVdF membranes with 5 wt% nano-sized MgO.

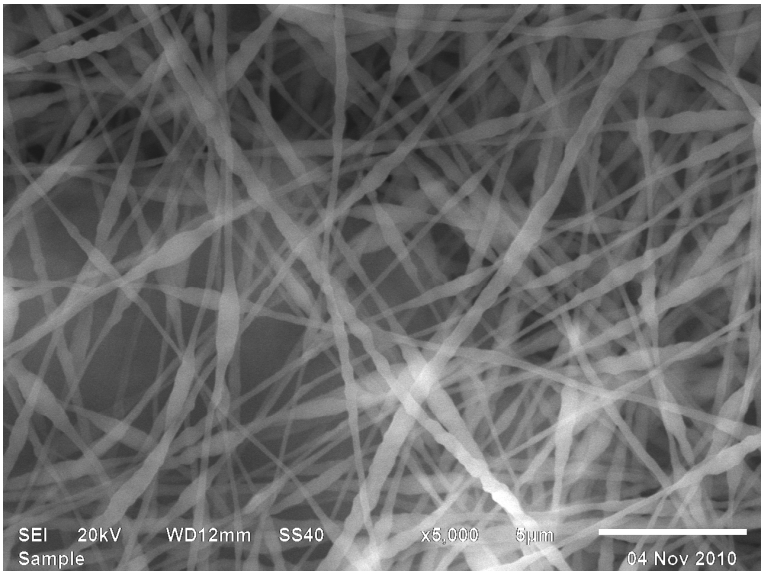

Figure S2. The SEM image of electrospun TPU-PVdF membranes with 10wt% nano-sized MgO.

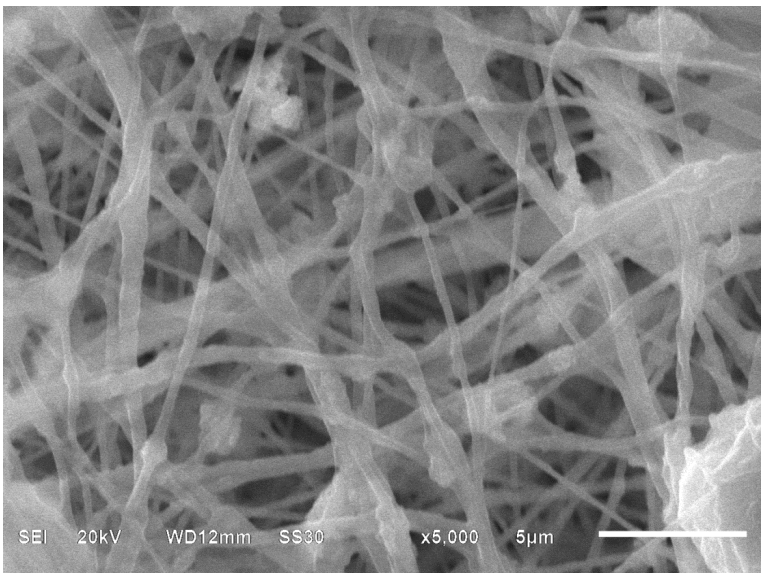

Figure S3. The SEM image of electrospun TPU-PVdF membranes with 15wt% nano-sized MgO.

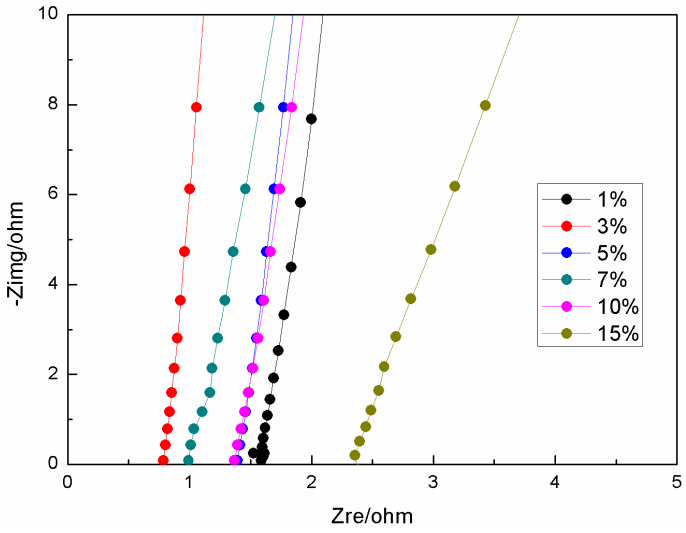

Figure S4. The typical Nyquist plots of EIS measurements of the GPEs with different MgO contents.

Table S1. Crystallinity (χ_c), Porosity and Mechanical properties of TPU-PVdF fibrous membranes with different content of MgO.

Sample name	Surface area (cm^2)	Porosiy (%)	ΔH_f (J/g)	χ_c (%)	Tensile strength (MPa)	Elongation at break (%)
TPU/PVdF/MgO(0%)	2.726	86	22.86	43.67	6.7 ± 0.1	85.7 ± 0.2
TPU/PVdF/MgO(1%)	2.695	90	18.07	34.52	6.9 ± 0.2	96.2 ± 0.1
TPU/PVdF/MgO(3%)	2.683	92	15.16	28.96	8.7 ± 0.1	111.4± 0.1
TPU/PVdF/MgO(5%)	2.719	95	13.93	26.61	8.1 ± 0.2	93.2 ± 0.1
TPU/PVdF/MgO(7%)	2.698	98	11.25	21.49	9.7 ± 0.1	91.7 ± 0.2
TPU/PVdF/MgO(10%)	2.701	94	9.83	18.78	8.7 ± 0.2	79.3 ± 0.2
TPU/PVdF/MgO(15%)	2.692	89	7.52	14.36	13.4 ±0.1	40.7 ± 0.1