

Supporting Information

**Nanocomposites with Graft Copolymer-
templated Mesoporous MgTiO₃ Perovskite for
CO₂ Capture Applications**

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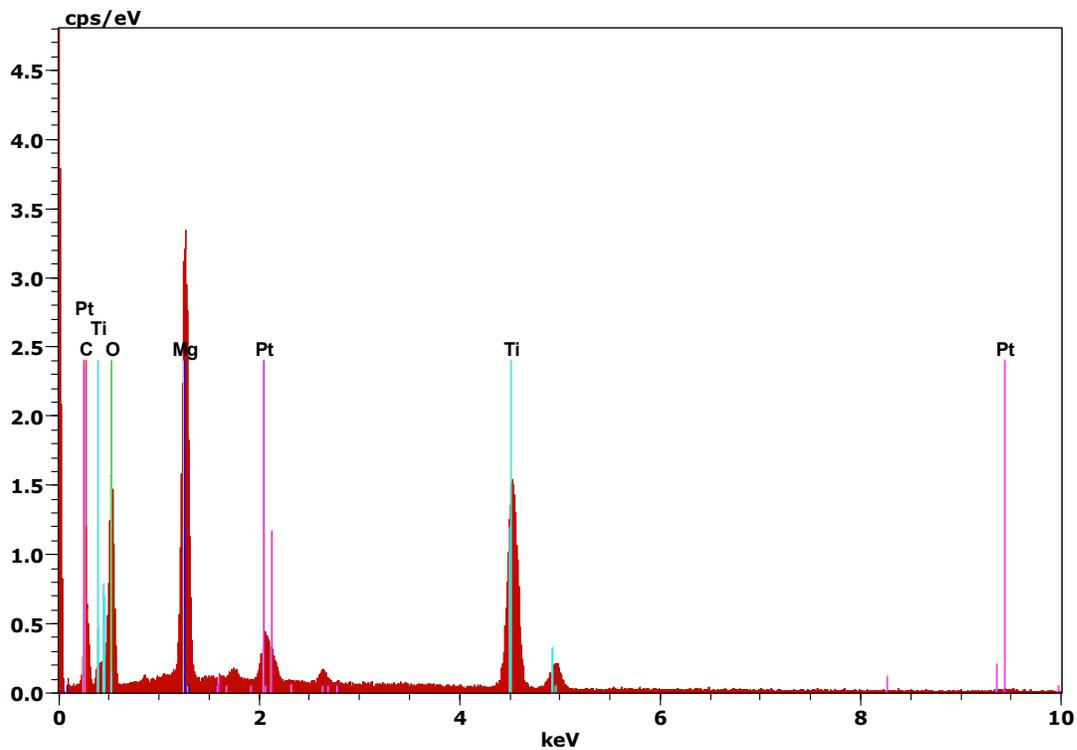
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Figure S1. SEM-EDS result of mesoporous MgTiO₃ perovskite. The presence of Pt is due to the Pt sputtering performed for the SEM measurements.



Element	Series	unn. C [wt.%]	norm. C [wt.%]	Atom. C [at.%]
Carbon	K-series	16.72	17.32	29.91
Oxygen	K-series	33.84	35.05	45.44
Magnesium	K-series	13.05	13.51	11.53
Titanium	K-series	28.01	29.02	12.57
Platinum	M-series	4.92	5.09	0.54
Total:		96.54	100.00	100.00

Figure S2. Surface SEM images of the MMM consisting of PVC-g-POEM and mesoporous MgTiO₃ perovskite at a MgTiO₃ loading of 25 wt%: (a) top and (b) bottom.

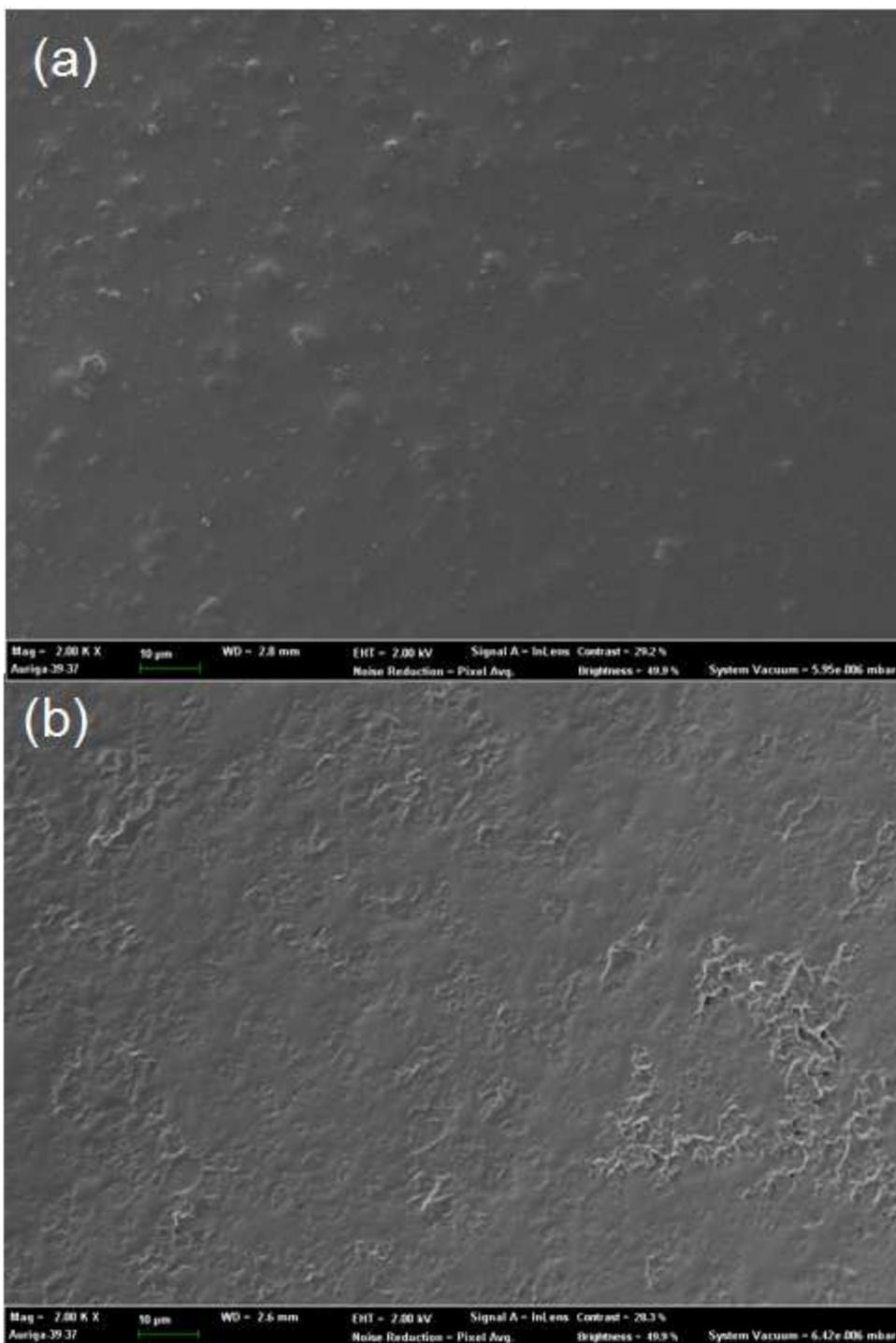


Figure S3. Cross-sectional SEM image of the MMM consisting of PVC-g-POEM and mesoporous MgO.

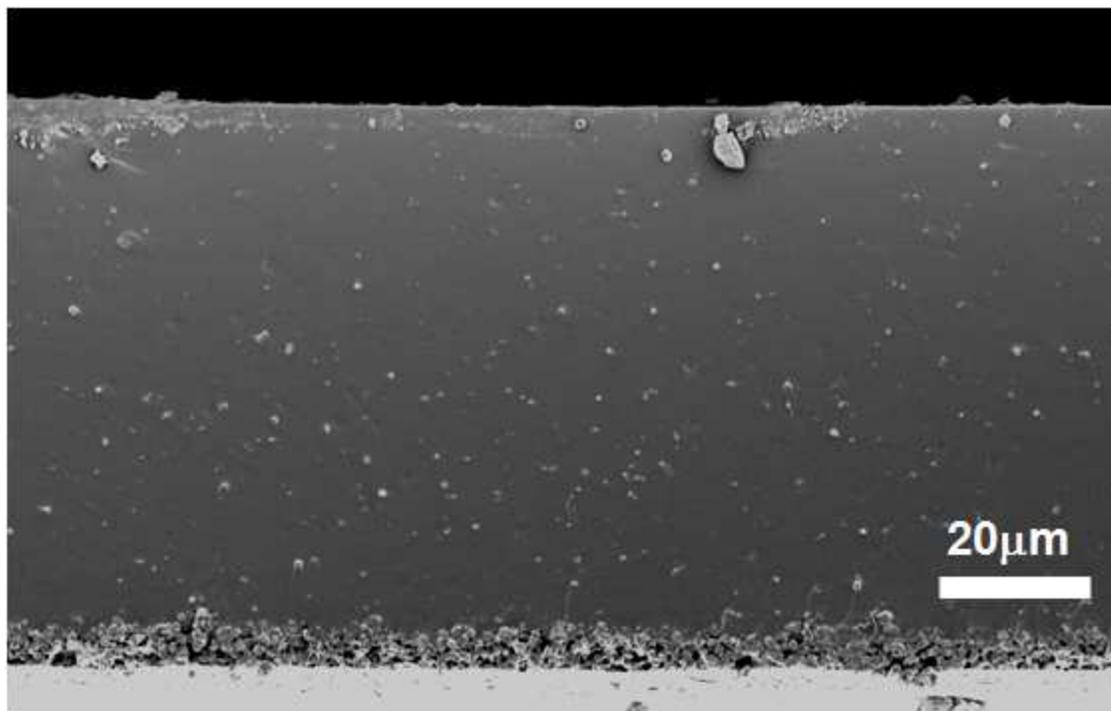


Figure S4. SEM image of MgO synthesized using the PVC-g-POEM graft copolymer as a template.

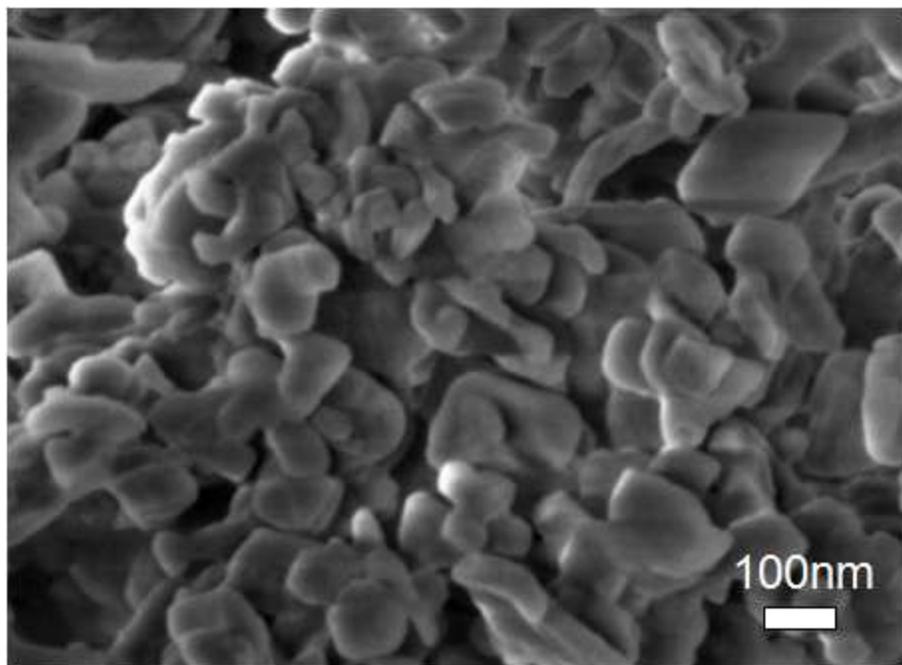


Figure S5. Relationship between CO₂ permeability and CO₂/N₂ selectivity of neat PVC-g-POEM and the PVC-g-POEM MMMs containing mesoporous MgTiO₃ perovskite, mesoporous MgO and mesoporous TiO₂. All mesoporous metal oxides were synthesized using PVC-g-POEM graft copolymer as a structure directing agent. The upper bound 1991 was calculated.

