

MOF-modified dendrite-free gel polymer electrolyte for zinc ion batteries

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Supporting Figure

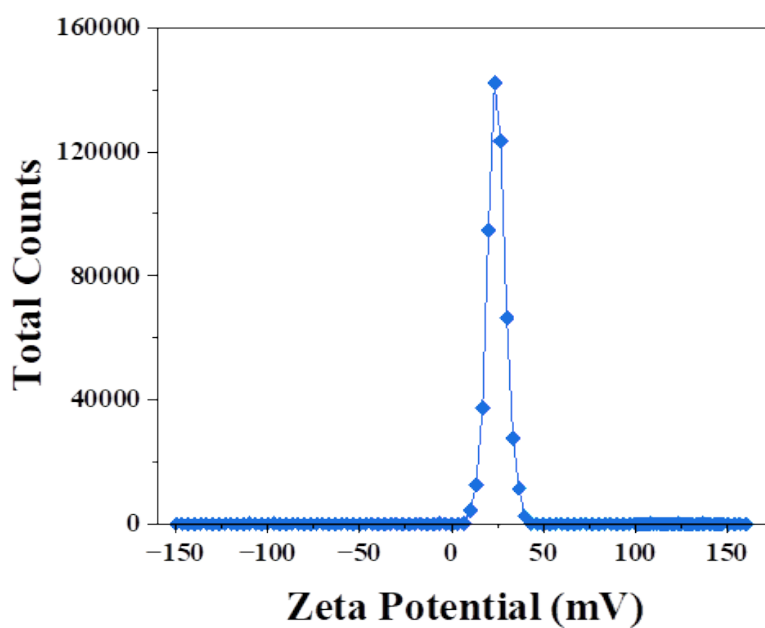


Figure S1 The zeta potential of ZIF-8.

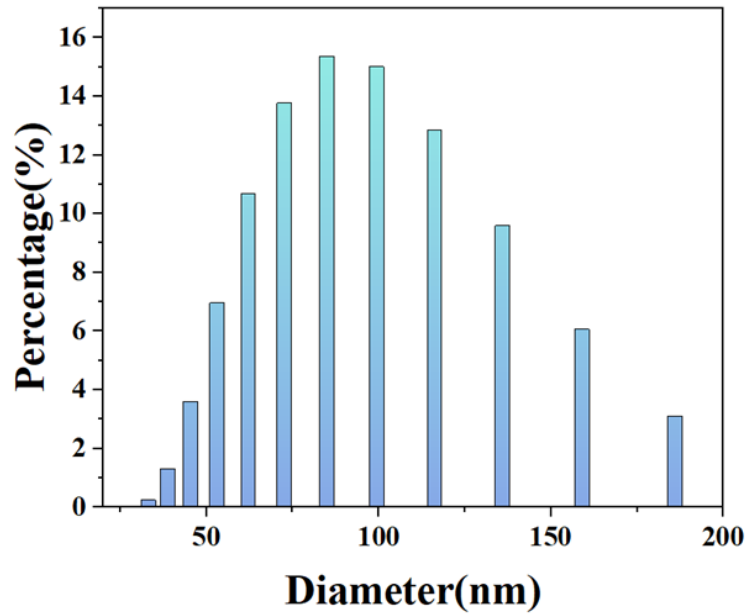


Figure S2 Size distribution of ZIF-8.

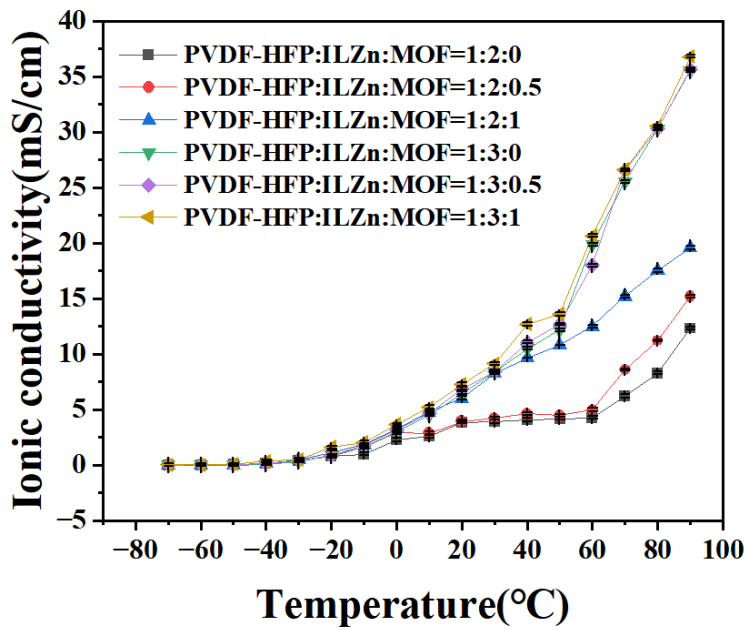


Figure S3 Ionic conductivity of gel polymer electrolyte.

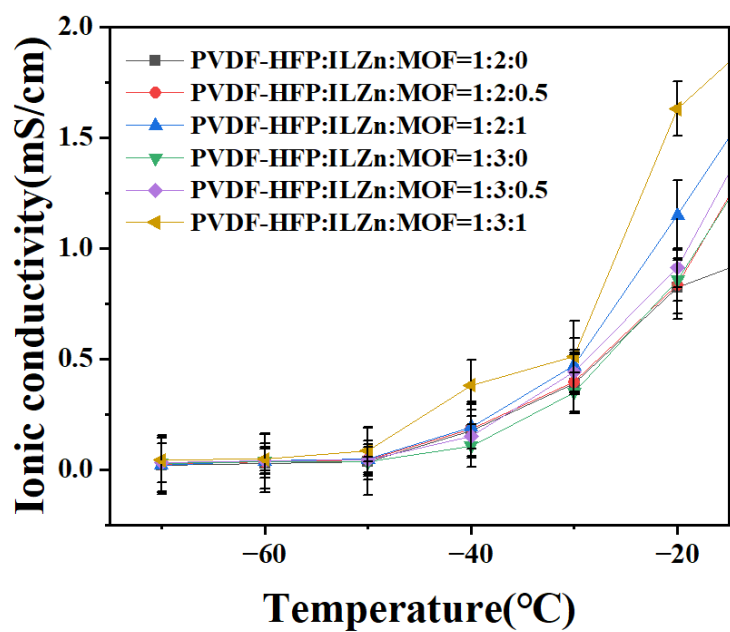


Figure S4 Amplification of ionic conductivity at low temperature

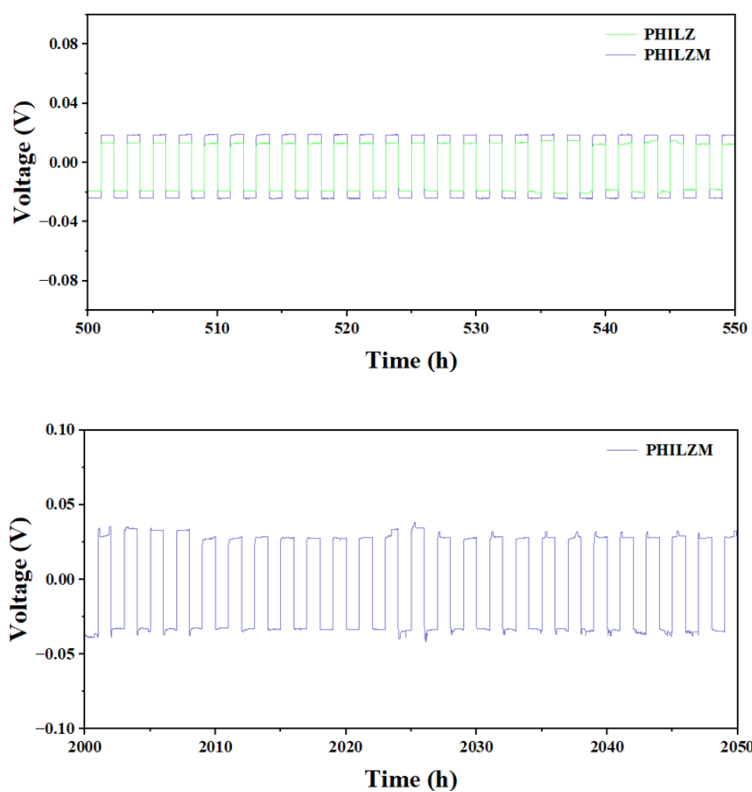


Figure S5 Voltage profiles of Zn/ Zn symmetrical batteries with different electrolyte at the current density of 1 mA cm^{-2} .

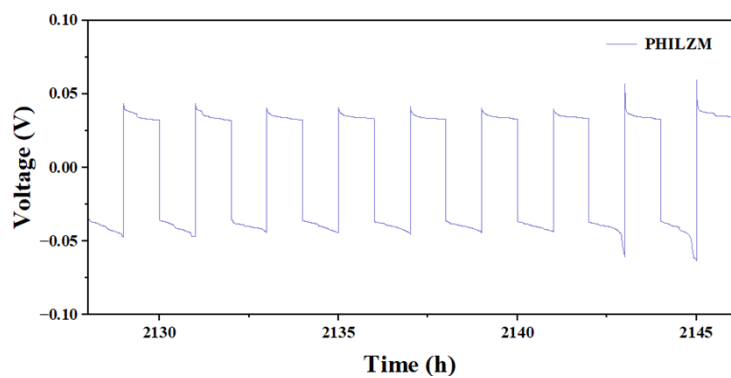
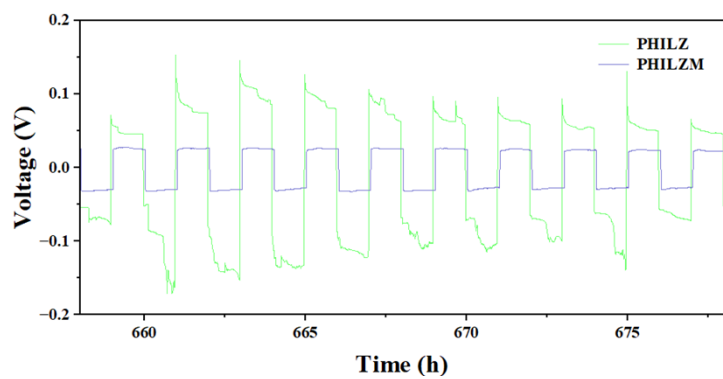
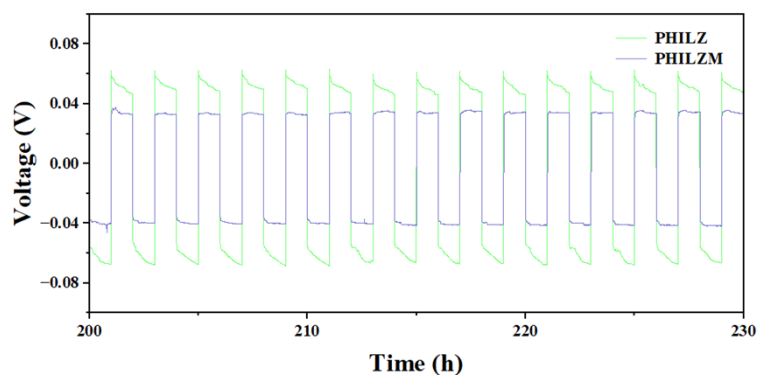


Figure S6 Voltage profiles of Zn/ Zn symmetrical batteries with different electrolyte at the current density of 5 mA cm^{-2} .

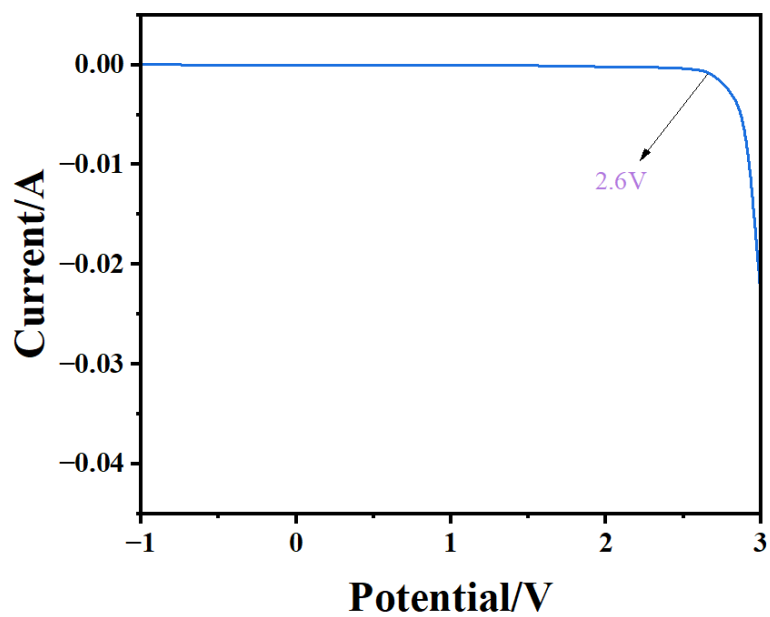


Figure S7 LSV curve of PHILZM.

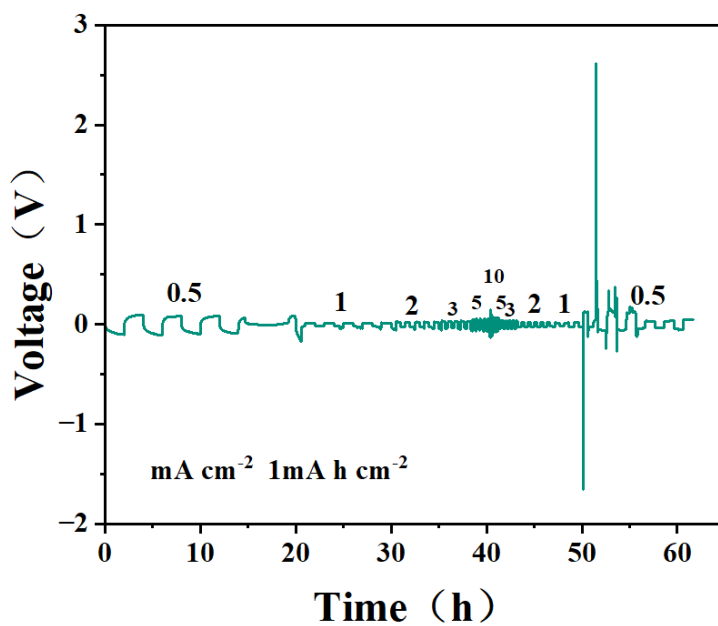


Figure S8 Rate performance of Zn/Zn cells with the PHILZ electrolyte.

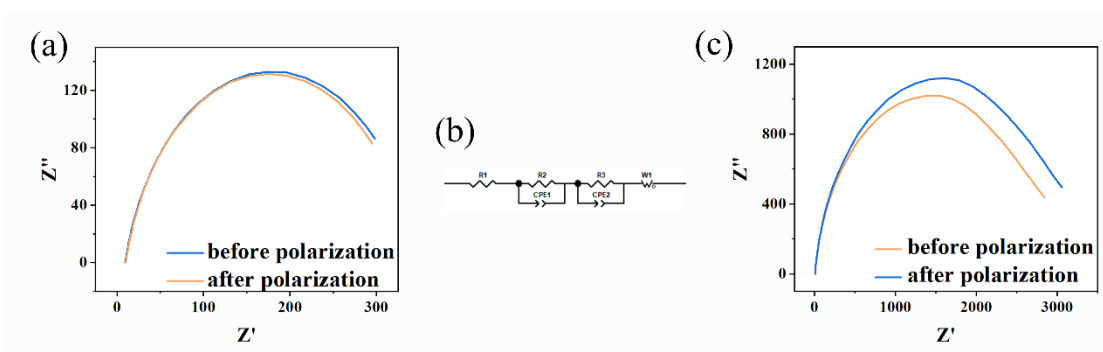


Figure S9 AC impedance plot during CA testing of (a) PHILZ and (c) PHILZM. (b) Equivalent circuit.

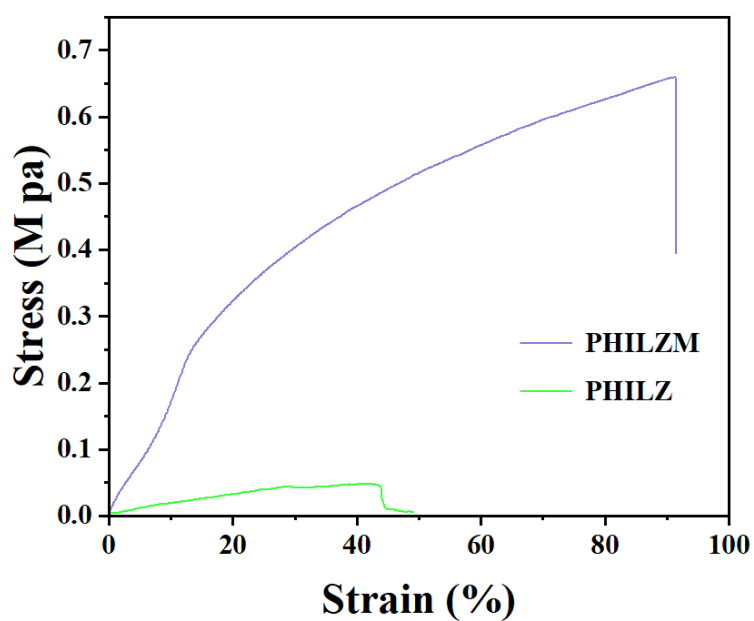


Figure S10 Stress-strain curves for PHILZM and PHILZ

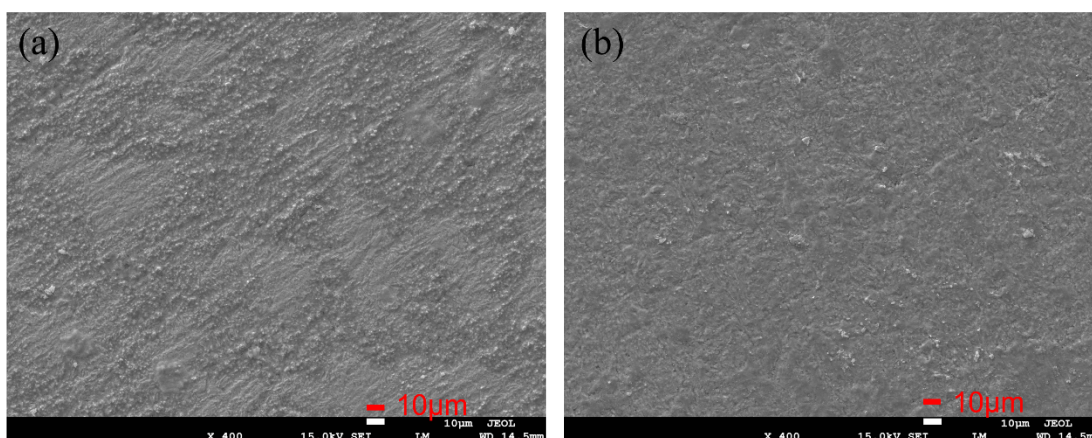


Figure S11 scanning electron microscope images after (a) 5 and (b) 10 plating/stripping cycles

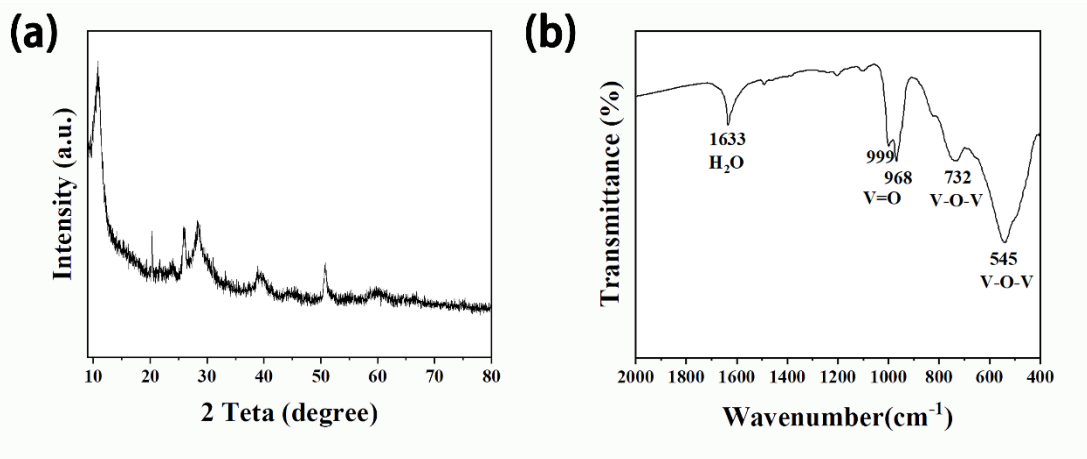


Figure S12 (a) XRD and (b) FTIR spectrum of NVO.

Supporting Table

Table S1 · The ionic conductivity and cycle life of Zn/ Zn-symmetric batteries with different electrolytes.

Electrolyte	Ionic conductivity (mS/cm)	Density/Capacity (mA cm ⁻² /mA h cm ⁻²)	Lifespan(hours)	references
PHILZM	7.3 (20°C)	1/1 5/5	3600 3000	This work
PVDF-HFP/nano SiO ₂	0.71(25°C)	×	×	2 ²
PVDF-HFP/nano HAP	0.74(25°C)	0.2/0.2	1200	3 ³
PVDF-HFP/ butanedinitrile	1.35(25°C)	×	×	4 ⁴
PVDF-HFP/Zr-BDC	0.527(25°C)	1/1	2000	5 ⁵
PVDF-HFP/MXene	1.54(25°C)	0.3/0.3	800	6 ⁶
PMIA@PAN/PVDF -HFP/TiO ₂	1.36(25°C)	0.2/0.2	1000	7 ⁷
PVDF-HFP/DI	2.4(20°C)	0.2/0.2	2000	8 ⁸
PVDF-HFP/Cu	3.59(25°C)	×	×	9 ⁹

Table S2 · The zeta potential of ZIF-8.

	Sample 1	Sample 2	Sample 3
zeta potential	24.3 mV	25.4 mV	24.1 mV

References

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