Supporting Information

Stable cycling of Prussian blue/Zn battery in a nonflammable

aqueous/organic hybrid electrolyte

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Cathode//Anode	Electrolyte	Current density	Initial capacity (mAh g ⁻¹)	Cycle number	Capacity retention	Reference
FeHCF//Zn	Aqueous 1 m NaTfO	1 A g ⁻¹	69.1	19000	51.4%	This work
	and 0.1 m Zn(TfO) ₂ in ACN/H ₂ O					
CoHCF//Zn	4 M Zn(BF ₄) ₂ in in-situ poly(1,3-dioxolane, DOL) SPE	0.5 A g ⁻¹	~160	20000	~66%	[1]
CoHCF//Zn	PVDF-HFP-PEO SPE with 2 M Zn(BF ₄) ₂ / [EMIM]BF ₄ ionic liquid	2 A g ⁻¹	103.4	30000	90%	[2]
MnHCF//Al	Aqueous 1 M Al(TfO) ₃	0.5 A g ⁻¹	82.1	100	69.5%	[3]
KCuHCF//Zn	Aqueous 0.5 M Zn(TfO) ₂ in TEP/H ₂ O	1C	73.3	1000	74%	[4]
Graphite//Zn	1 M Zn(TFSI) ₂ in ACN	1 A g ⁻¹	42	4000	82%	[5]
$\delta - MnO_2 //Zn$	0.3 M ZnCl ₂ in ChCl/urea	0.1 A g ⁻¹	72	150	~50%	[6]

 Table S1. Comparison of cycling performance of various battery systems.



Fig. S1. Gas evolution experiments of the aqueous battery in the idle mode using ACN-50 electrolyte. (a) Images of the aqueous battery after rest for various durations after charge to 1.2 V. (b) Images of the aqueous battery after rest for various duration after subsequent discharge to 0.7 V.

References

- L. T. Ma, S. M. Chen, X. L. Li, A. Chen, B. B. Dong and C. Y. Zhi, *Angew. Chem. Int. Ed.*, 2020, 59, 23836–23844.
- 2 L. T. Ma, S. M. Chen, N. Li, Z. X. Liu, Z. J. Tang, J. A. Zapien, S. M. Chen, J. Fan and C. Y. Zhi, *Adv. Mater.*, 2020, **32**, 1908121.
- 3 D. H. Wang, H. M. Lv, T. Hussain, Q. Yang, G. J. Liang, Y. W. Zhao, L. T. Ma, Q. Li, H. F. Li, B.
 B. Dong, T. Kaewmaraya and C. Y. Zhi, *Nano Energy*, 2021, 84, 105945.
- 4 A. Naveed, H. J. Yang, J. Yang, Y. Nuli and J. L. Wang, Angew. Chem. Int. Ed., 2019, 58, 2760–2764.
- 5 N. Zhang, Y. Dong, Y. Y. Wang, Y. X. Wang, J. J. Li, J. Z. Xu, Y. C. Liu, L. F. Jiao and F. Y. Cheng, *ACS Appl. Mater. Inter.*, 2019, **11**, 32978–32986.
- 6 W. Kao. Ian, R. Pornprasertsuk, P. Thamyongkit, T. Maiyalagan and S. Kheawhom, *J. Electrochem. Soc.*, 2019, **166**, A1063–A1069.