Supporting Information

Zinc dendrite suppression by a novel additive combination for rechargeable aqueous zinc batteries

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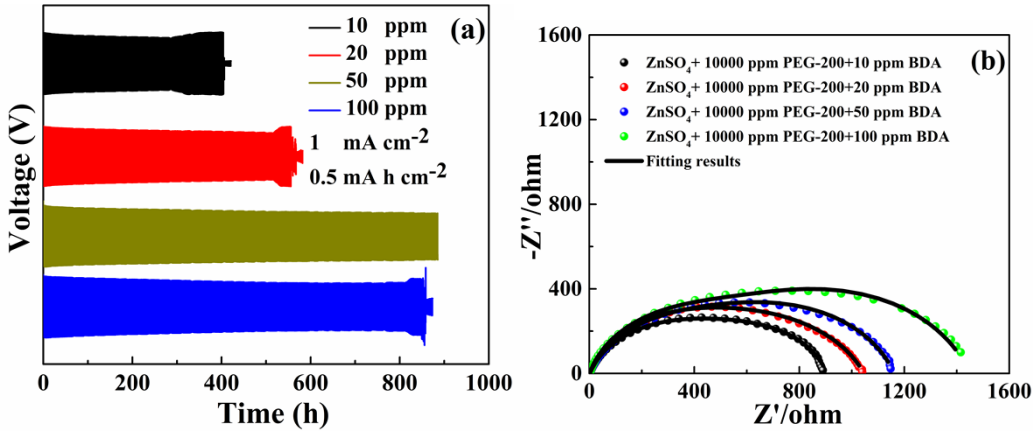

Figure S1. (a) GCD performance of Zn–Zn symmetric cells with different BDA concentrations (with 1 mA h cm^{-2} at 0.5 mA cm^{-2}), (b) EIS curves of Zn–Zn symmetric cells with different BDA concentrations.

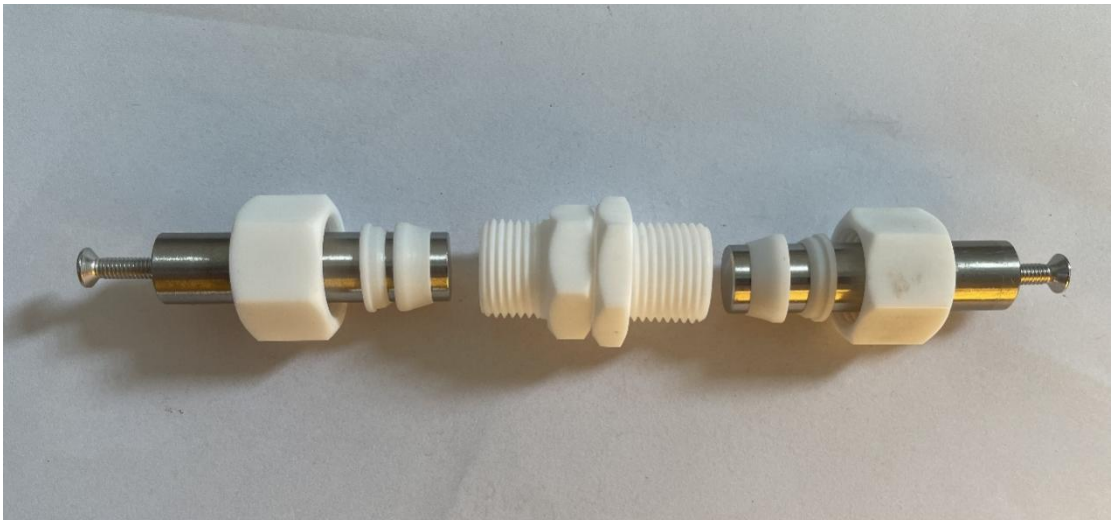

Figure S2. The digital picture of the battery testing device used in this study.

10000 ppm PEG-200 and 50 ppm BDA were selected as modified additives, and the electrolytes were divided into A1, A2 and A3 for comparative studies, as shown in Table S1.

Table S1. Compositions of three electrolytes

Composition	Number		
	A1	A2	A3
$ZnSO_4$	1 mol/L	1 mol/L	1 mol/L
PEG-200	-	10000 ppm	10000 ppm
BDA	-	-	50 ppm

Table S2. The pH values of different electrolytes.

Samples	pH
Deionized water	6.80
1M $ZnSO_4$	4.78
1M $ZnSO_4$+10000 ppm PEG	4.29
1M $ZnSO_4$+10000 ppm PEG+10 ppm BDA	4.27
1M $ZnSO_4$+10000 ppm PEG+20 ppm BDA	4.25
1M $ZnSO_4$+10000 ppm PEG+50 ppm BDA	4.23
1M $ZnSO_4$+10000 ppm PEG+100 ppm BDA	4.21

Table S3. Corrosion potential and corrosion current density of metallic zinc in the three electrolytes obtained by fitting the Tafel plots.

	Corrosion potential (V)	Corrosion current density (A cm^{-2})
$ZnSO_4$	-1.032	4.45×10^{-3}
$ZnSO_4$+PEG-200	-1.024	0.6×10^{-3}
$ZnSO_4$+PEG-200+BDA	-1.025	0.9×10^{-3}