Supporting Information for

Zinc Anode for Mild Aqueous Zinc-Ion Batteries: Challenges, Strategies, and Perspectives

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Supplementary Table

Table S1 Summary of the electrochemical performance for some mild aqueous ZIBs

Anode	Electrolyte	Current density (mA cm^{-2})	Area capacity (mAh cm^{-2})	Performance of pristine symmetric batteries		Performance of improved symmetric batteries		Refs.
				Voltage hysteresis (mV)	Lifespan (h)	Voltage hysteresis (mV)	Lifespan (h)	
Nafion-Zn-X layer	2 M $ZnSO_4$	2	0.5	90	71 cycles	50	1000 cycles	[S1]
HsGDY layer	2 M $ZnSO_4$	2	0.1	~228	63	~120	>2400	[S2]
Nanoporous $CaCO_3$	3 M $ZnSO_4$ + 0.1 M $MnSO_4$	0.25	0.05	230	55	80	836	[S3]
Cyanoacrylate layer	2 M $ZnSO_4$	2	1	~91.3	~60	~111.2	400	[S4]
3D ZnF_2 layer	2 M $ZnSO_4$	1	1.0	128	#	~71.5	800	[S5]
Polyimide layer	2 M $ZnSO_4$	4	2	~100	105	25	300	[S6]
Zn@ZnO-3D	3 M $ZnSO_4$ + 0.1 M $MnSO_4$	5	1.25	#	#	43	500	[S7]
Graphite	2 M $ZnSO_4$	0.1	0.1	#	~70	~28	200	[S8]
3D carbon nanotube	2 M $ZnSO_4$	2	2	#	50	27	200	[S9]
MXene layer	2 M $ZnSO_4$	0.2	0.2	~125	167	47	800	[S10]
ZIF-8 layer	2 M $ZnSO_4$	2	1	~60	130	~58	1200	[S11]
Au nanoparticles	3 M $ZnSO_4$	0.25	0.05	~80	92	~60	2000	[S12]

Sn coating	2 M $ZnSO_4$	1	0.5	~130	120	50	500	[S13]
Cu interfacial layer	3 M $ZnSO_4$ + 0.1 M $MnSO_4$	5	2	~75	84	31.5	1500	[S14]
Ag interfacial layer	3 M $ZnSO_4$ + 0.1 M $MnSO_4$	5	2	~75	84	28.3	448	[S15]
liquid Ga-In alloy coating	3 M $ZnSO_4$	0.25	0.05	72	80	24	2100	[S16]
liquid Ga-In-Zn alloy layer	2 M $ZnSO_4$	1	0.5	#	100	~20	500	[S17]
In microparticles	2 M $ZnSO_4$	0.2	0.2	261	~150	54	1500	[S18]
β-PVDF	2 M $ZnSO_4$	0.25	0.05	~165	350	80	2000	[S19]
AEC coating	2 M $ZnSO_4$	0.885	0.885	<50	~450	<50	2000	[S20]
Alucone	3 M $Zn(SO_3CF_3)_2$	3	1	84.3	70	110.3	780	[S21]
Cu mesh	1 M $ZnSO_4$	1	1	>35	60	20	340	[S22]
3D Ni–Zn anode	2 M $ZnSO_4$	5	2	160	20	80	200	[S23]
3D nanoporous Zn	2 M $Zn(CF_3SO_3)_2$	0.5	0.1	~100	220	60	1400	[S24]
Copper foam	2 M $ZnSO_4$ + 0.1 M $MnSO_4$	2	1	#	~145	~40	150	[S25]
3D porous copper skeleton	2 M $ZnSO_4$	0.5	0.5	100	110	40	350	[S26]
3D ridge structure Zn	3 M $ZnSO_4$	1	0.5	72	39	20	200	[S27]
3D ZnP/CF	2 M $ZnSO_4$	1	1	482	170	25.1	3000	[S28]
Carbon fiber	3 M $Zn(CF_3SO_3)_2$	0.25	0.125	80	110	46	200	[S29]
Graphite fiber	0.5 M $NaSO_4$ + 0.05 M $ZnSO_4$	1	1	~100	50 cycles	~50	350 cycles	[S30]
ZIF-8-500 layer	2 M $ZnSO_4$	2	1	#	#	#	>200 cycles	[S31]
$Ti_3C_2T_x$ MXene@Zn paper	2 M $ZnSO_4$	1	1	>109	~78	~83	300	[S32]
Cu–Zn nanoalloy	3 M $ZnSO_4$	1	0.5	>400	#	~46	1500	[S33]
Eutectic $Zn_{88}Al_{12}$ alloy	2 M $ZnSO_4$	0.5	0.5	~101	~50	~20	2000	[S34]
3D Zn-Mn alloy	2 M $ZnSO_4$ in seawater	80	16	~600	<30	~300	760	[S35]
Zn	$ZnSO_4$ + glucose	1	1	#	300	#	2000	[S36]
Zn	$ZnSO_4$ + glycerol	2	6	#	100	#	900	[S37]
Zn	$ZnSO_4$ + amino acid	5	4	#	70	#	2200	[S38]
Zn	$ZnSO_4$ + ZnF_2	1	1	165	~80	124	600	[S39]
Zn	$ZnSO_4$ + KPF_6	2	4	#	95	#	1200	[S40]
Zn	ZPSAM	2	0.5	#	55	#	1000	[S41]
Zn	PAMPSZn	1	1	#	139	100	4500	[S42]
Zn	PVHF/MXene -g-$PMA^{0.05}$	0.2	0.2	#	#	#	1200	[S43]

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