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Supplementary Materials

Bifunctional Single-atom Cobalt Electrocatalysts with Dense Active Sites Prepared via a Silica Xerogel Strategy for Rechargeable Zinc-Air Batteries

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Keywords: single-atom catalysts; ORR/OER; electrocatalysis; zinc-air battery; xerogel

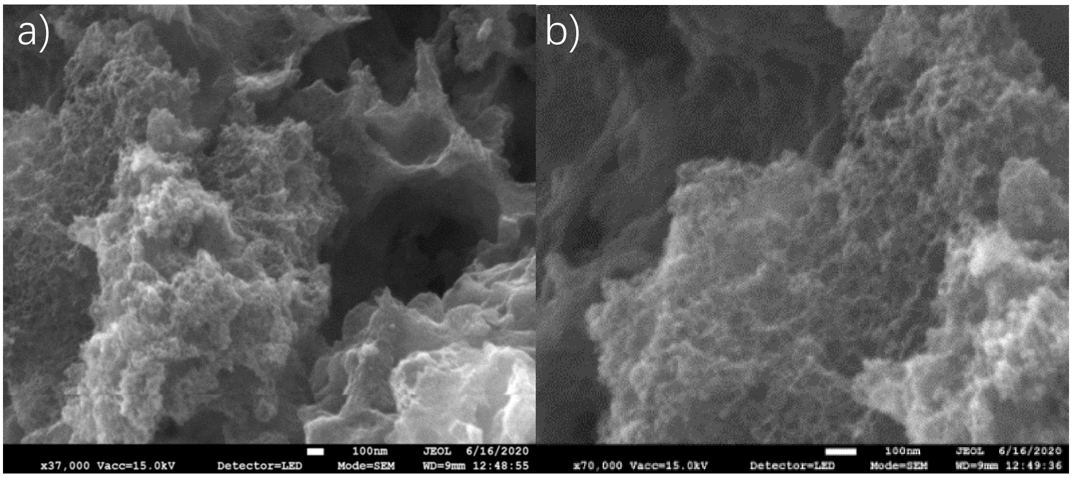

Figure S1. (**a**,**b**) SEM images of the Co-N-C SAC.

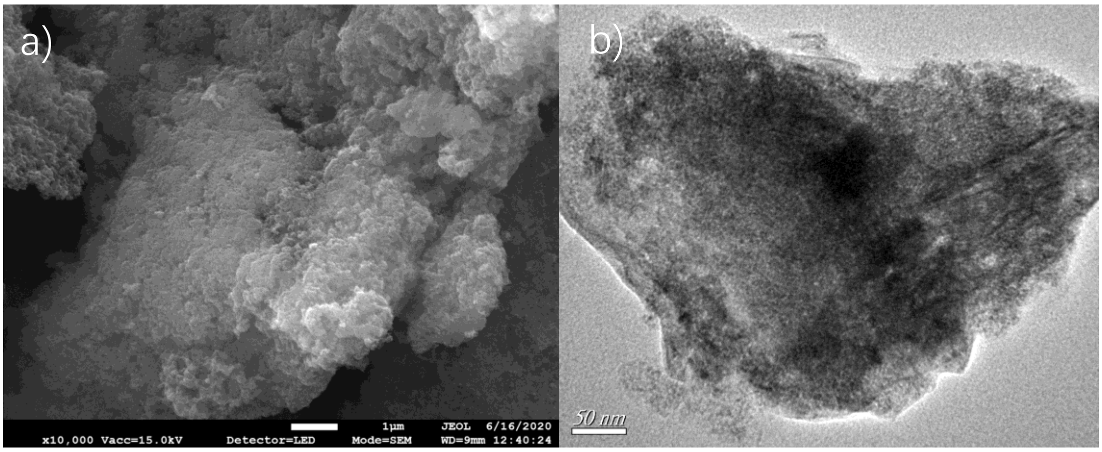

Figure S2. (**a**) SEM and (**b**) TEM images of the N-C sample.

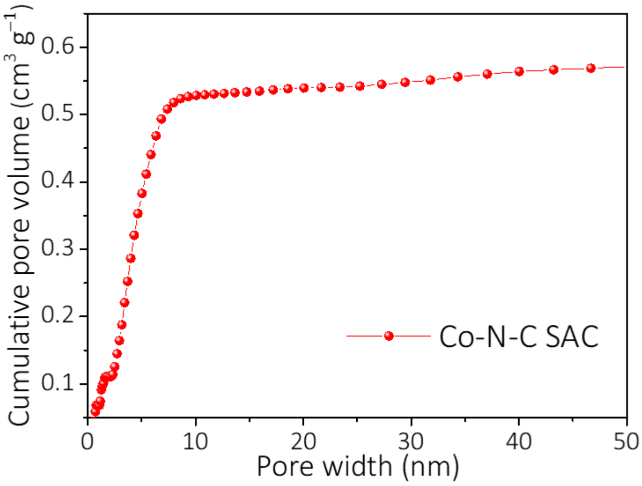

Figure S3. Cumulative pore volume for Co-N-C SAC.

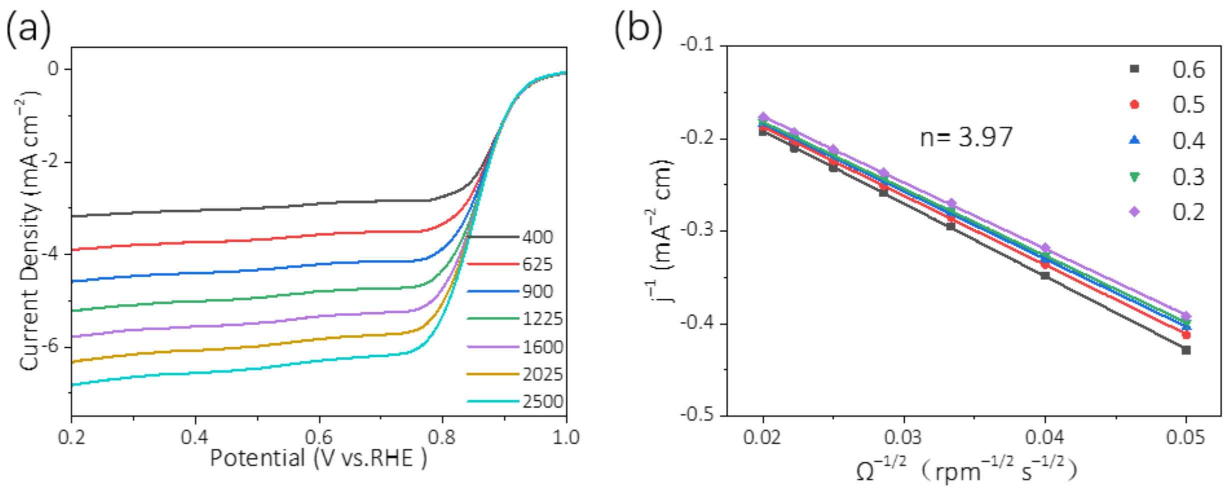

Figure S4. (a) ORR LSV at different rates, (**b**) K-L plots of Co-N-C SAC.

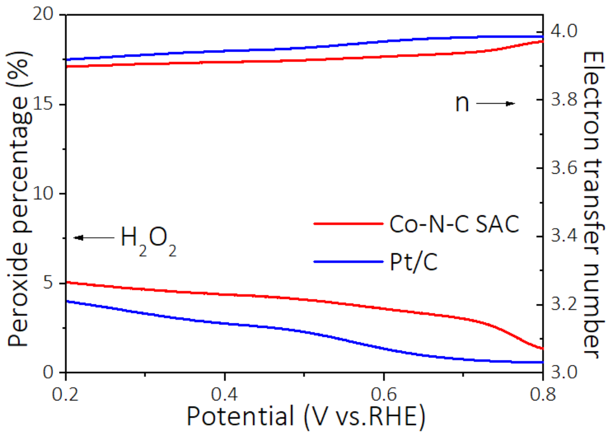

Figure S5. The H_2O_2 yield and number of electron transfer at Co-N-C SAC and Pt/C.

Table S1. Mass fraction content of C, N, O and Co in Co-N-C SAC extracted from XPS measurements.

Catalysts	C	N	O	Co
Co-N-C SAC	81.62 wt%	10.74 wt%	3.03 wt%	2.38 wt%

Table S2. The onset potential of each catalyst in this work during ORR compared to the recent literature.

Entry	Catalyst	E_{onset} (V *vs.* RHE)	Reference
1	Co-N-C SAC	1.01	This work
2	N-C	0.90	
3	Pt/C	0.97	
4	Co-N-OCC	0.87	[1]
5	act-Co/N/C	0.943	[2]
6	Co/VN@NC	0.954	[3]
7	Fe-NC	0.963	[4]
8	$Fe_3C/Co(Fe)O_x$@NCNT	0.97	[5]
9	Co-NHCS	0.99	[6]
10	BCNT/Co-800	1.12	[7]

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