

*Supplementary Materials*

# **Cobalt Phthalocyanine-Doped Polymer-Based Electrocatalyst for Rechargeable Zinc-Air Batteries**

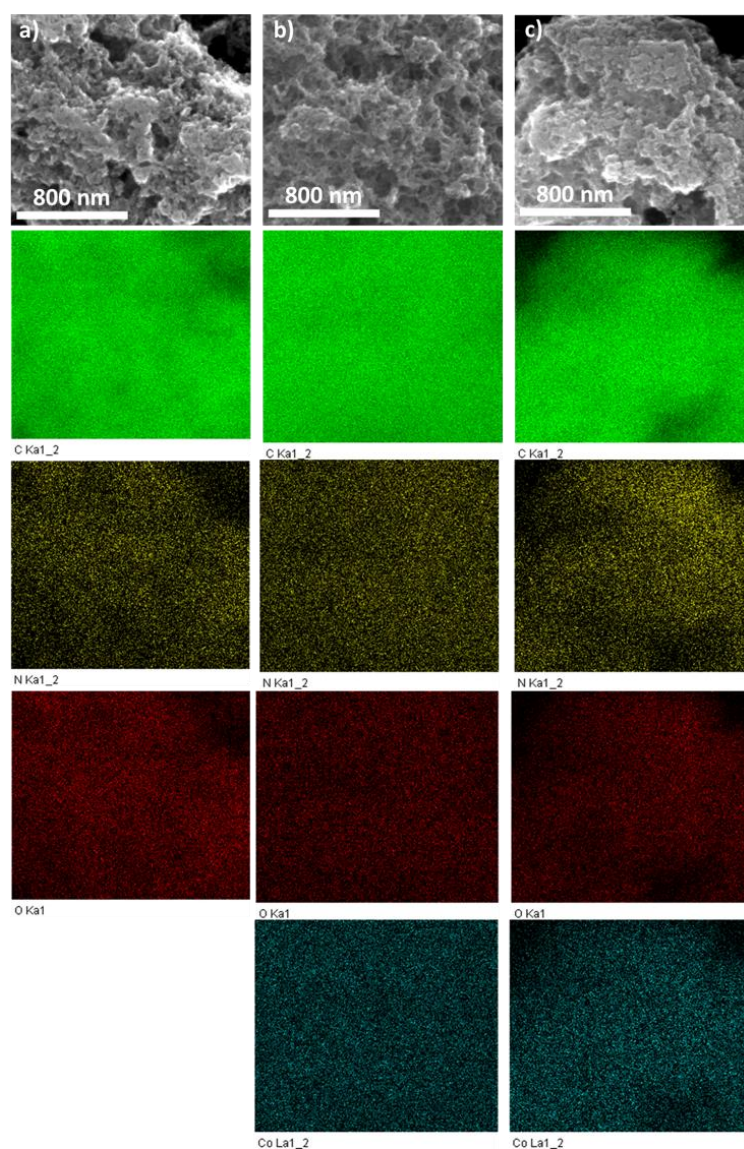
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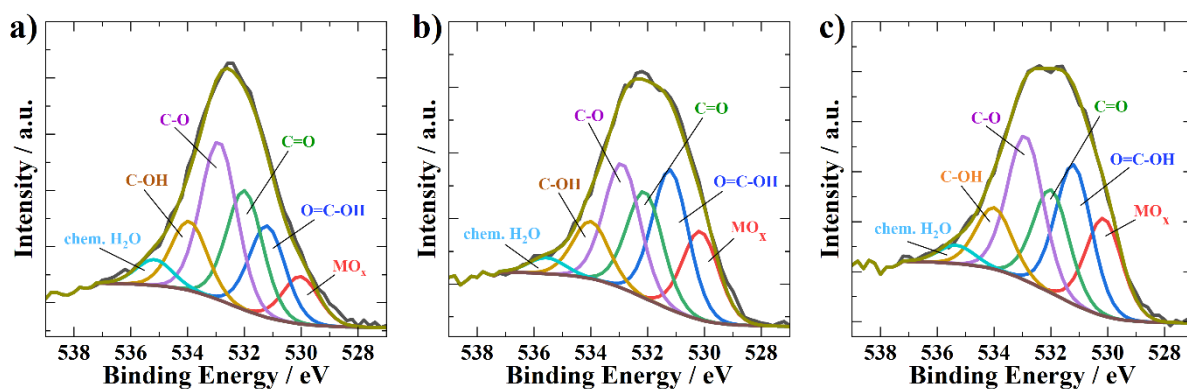
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**Figure S1.** Elemental maps of C, N, O, and Co obtained from SEM-EDX of (a) PC-800, (b) CoN-PC-1, and (c) CoN-PC-2.



**Figure S2.** O 1s high-resolution XPS spectra of a) PC-800, b) CoN-PC-1, and c) CoN-PC-2.

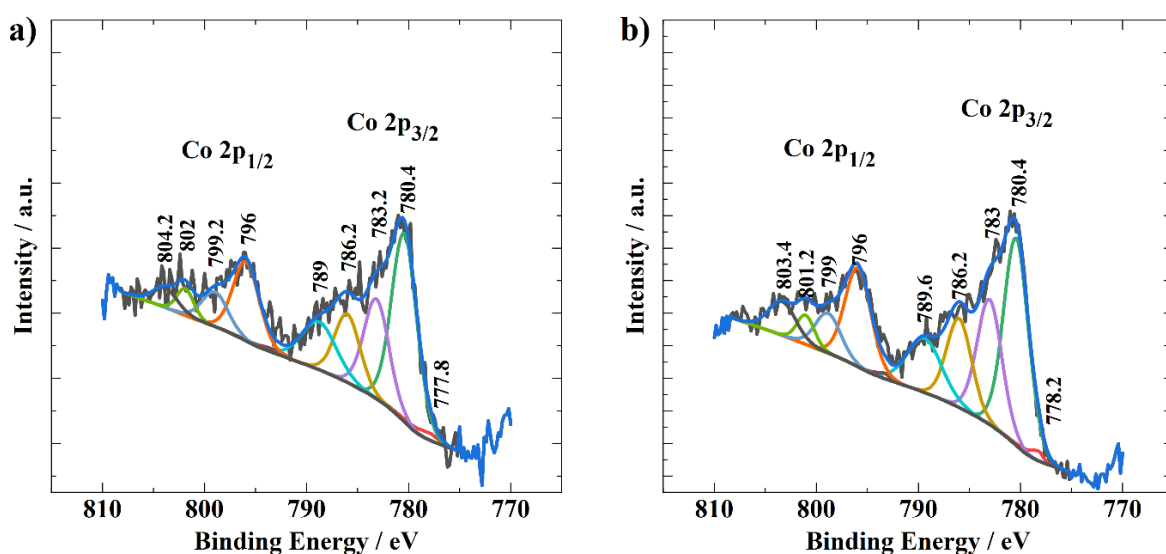


Figure S3. Deconvoluted Co 2p XPS spectra for a) CoN-PC-1 and b) CoN-PC-2 catalysts.

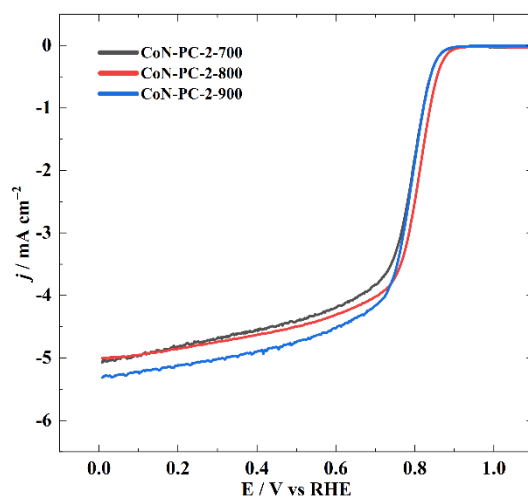
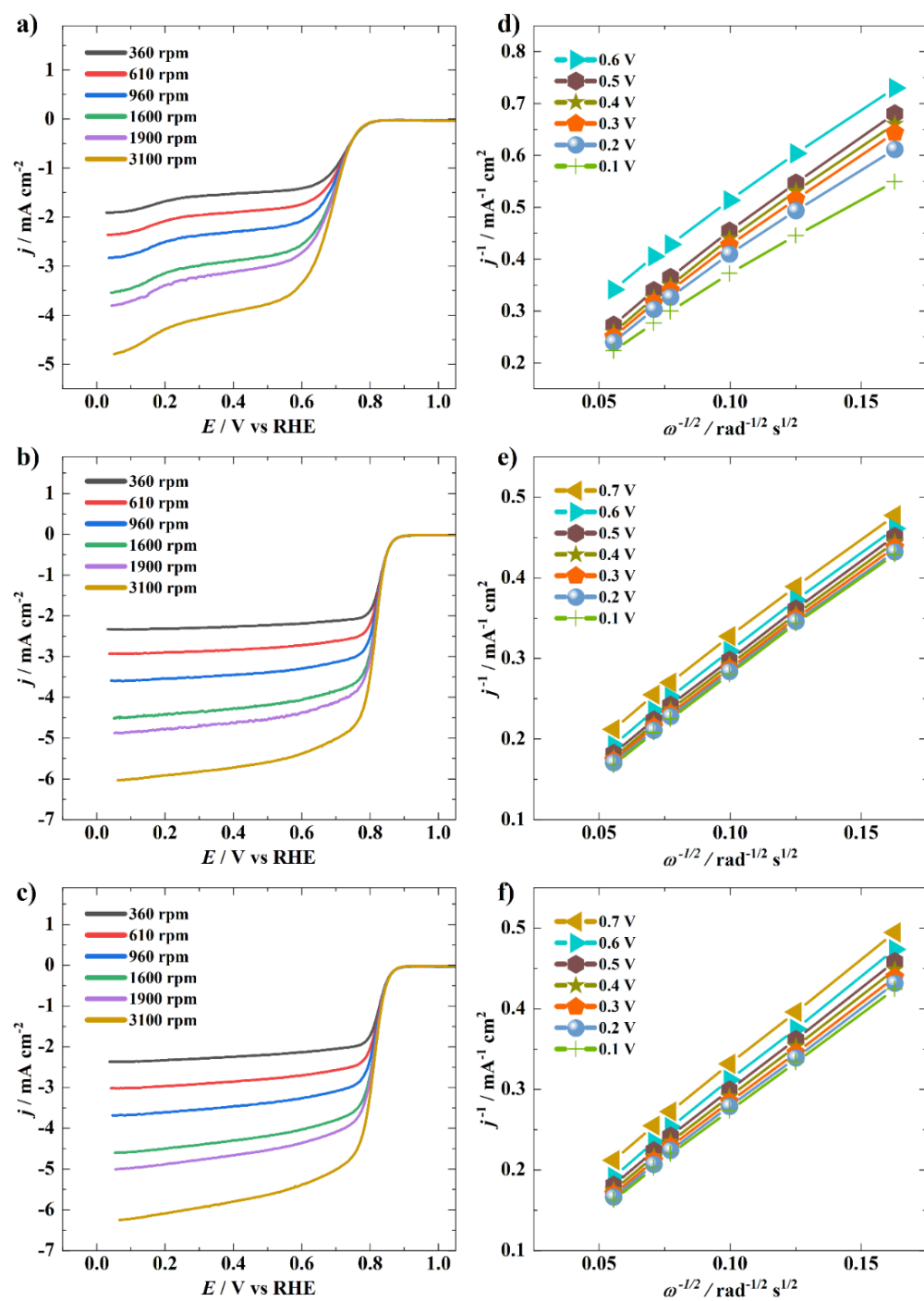


Figure S4. ORR polarisation curves for catalysts prepared at different temperatures. Test conditions: O<sub>2</sub>-saturated 0.1 M KOH solution,  $\nu = 10 \text{ mV s}^{-1}$ ,  $\omega = 1900 \text{ rpm}$ .

Table S1. ORR parameters in 0.1 M KOH for catalysts prepared at different temperatures.

Catalyst	$E_{\text{onset}} / \text{V}$	$E_{1/2} / \text{V}$
CoN-PC-2-700	0.87	0.78
CoN-PC-2-800	0.88	0.81
CoN-PC-2-900	0.88	0.78



**Figure S5.** ORR polarisation curves at different rotation rates for (a) PC-800, (b) CoN-PC-1, and (c) CoN-PC-2 in O<sub>2</sub>-saturated 0.1 M KOH solution. Koutechy-Levich (K-L) plots for (d) PC-800, (e) CoN-PC-1, and (f) CoN-PC-2 derived from the respective polarisation curves.

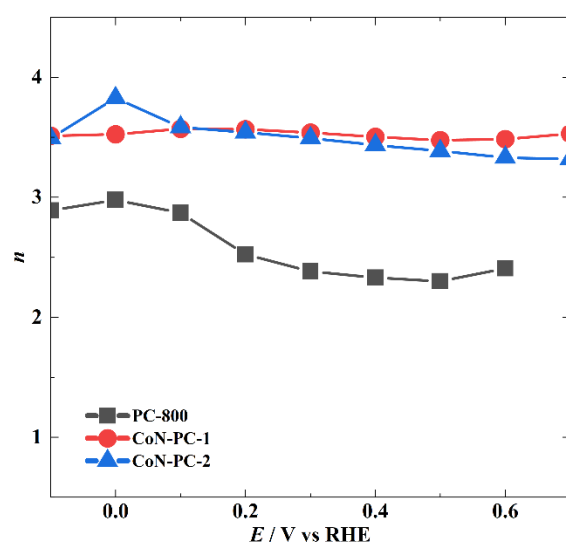


Figure S6. Number of transferred electrons per  $O_2$  molecule derived from the K-L plots.

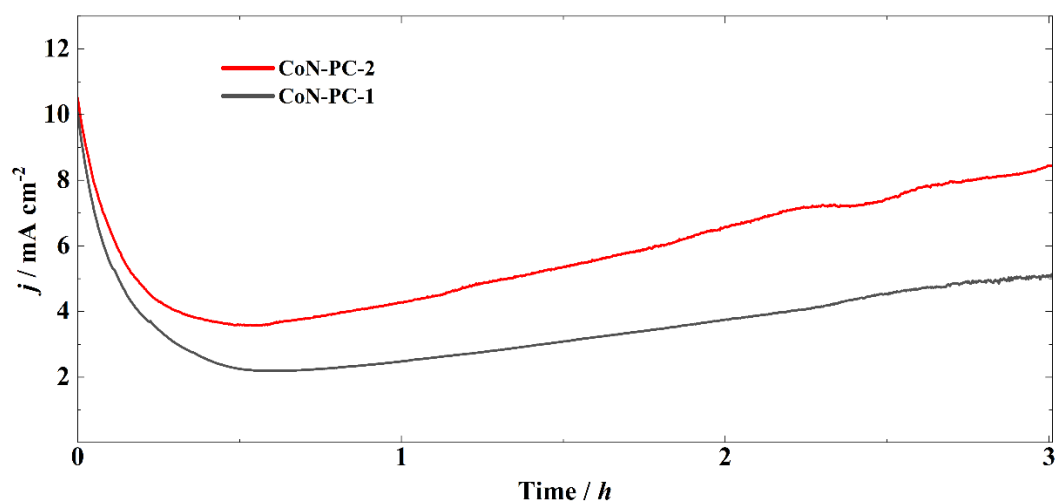


Figure S7. OER stability test for CoN-PC-1 and CoN-PC-2 at 1.7 V for 3 h ( $\omega = 1900$  rpm).