

CHEMELECTROCHEM

Supporting Information

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Buffer pK_a and Transport Govern the Concentration Overpotential in Electrochemical Oxygen Reduction at Neutral pH

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celc_201402058_sm_miscellaneous_information.pdf

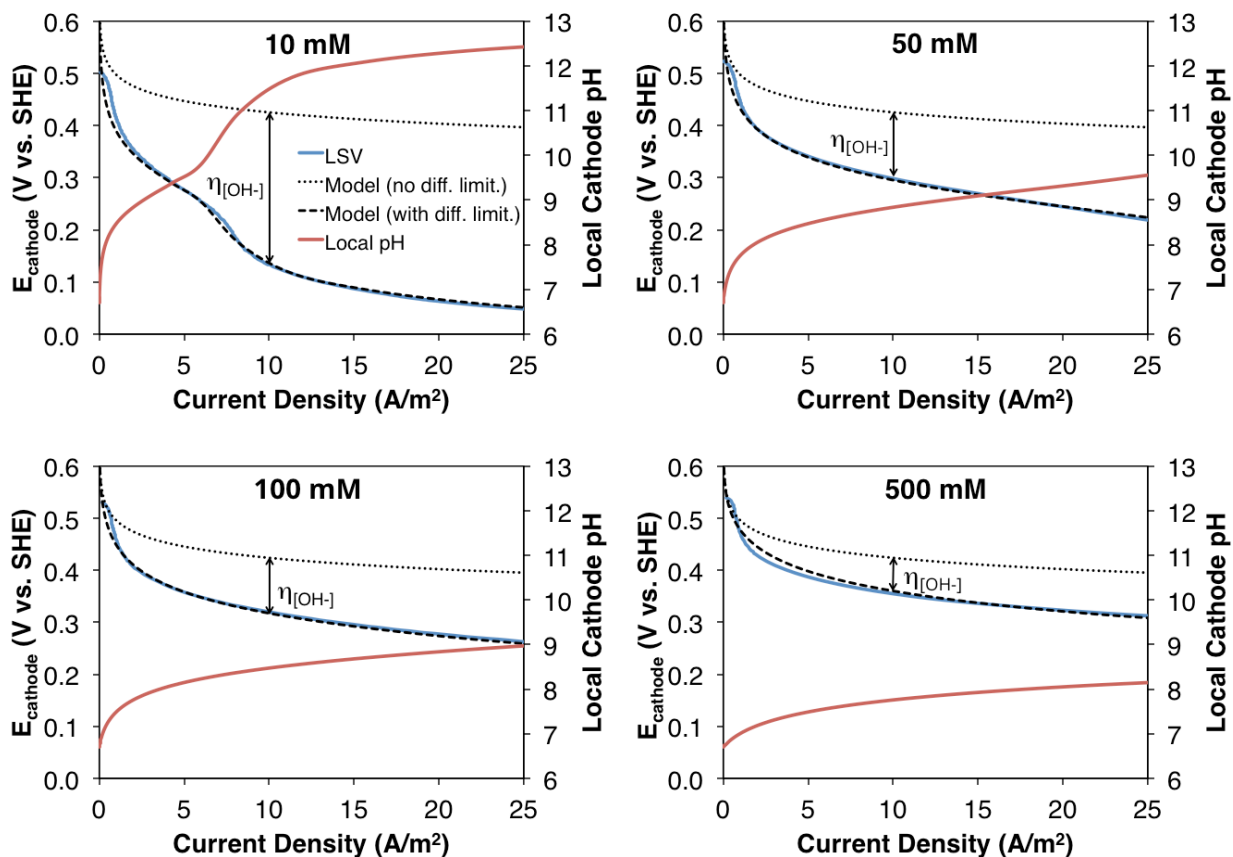


Figure S1. Comparison of LSV of a Pt-based gas-diffusion cathode in 10, 50, 100, and 500 mM NH_4Cl solutions (with 25 mM NaCl) with model fits from the Butler–Volmer equation without and with diffusion limitation, and the predicted local cathode pH value as a function of current density resulting from NH_4^+ and OH^- diffusion limitation.

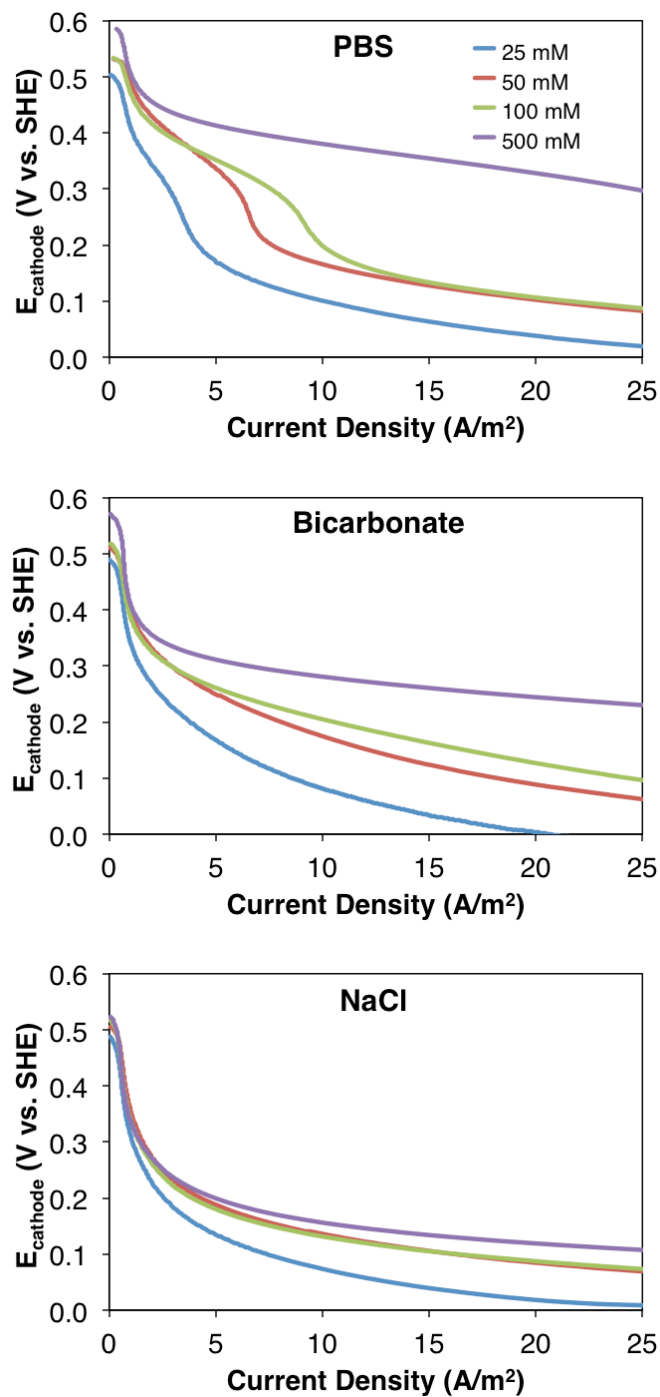


Figure S2. LSVs of Pt-based gas-diffusion cathodes in solutions containing different concentrations (0-500 mM) PBS and bicarbonate buffers or NaCl.

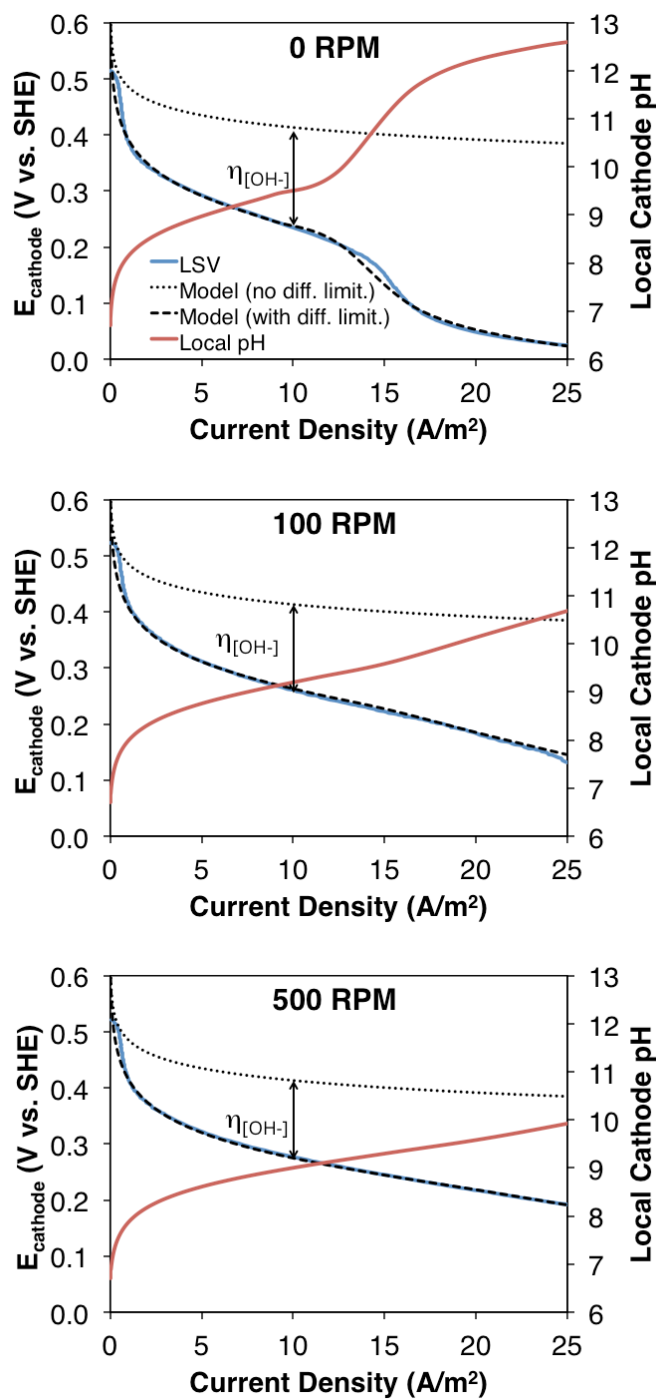


Figure S3. Comparison of LSV of a Pt-based gas-diffusion cathode in 25 mM NH_4Cl solution (with 25 mM NaCl) at 0, 100, and 500 RPM stirring speeds with model fits from the Butler–Volmer equation without and with diffusion limitation and with the predicted local cathode pH value as a function of current density resulting from NH_4^+ limitation.

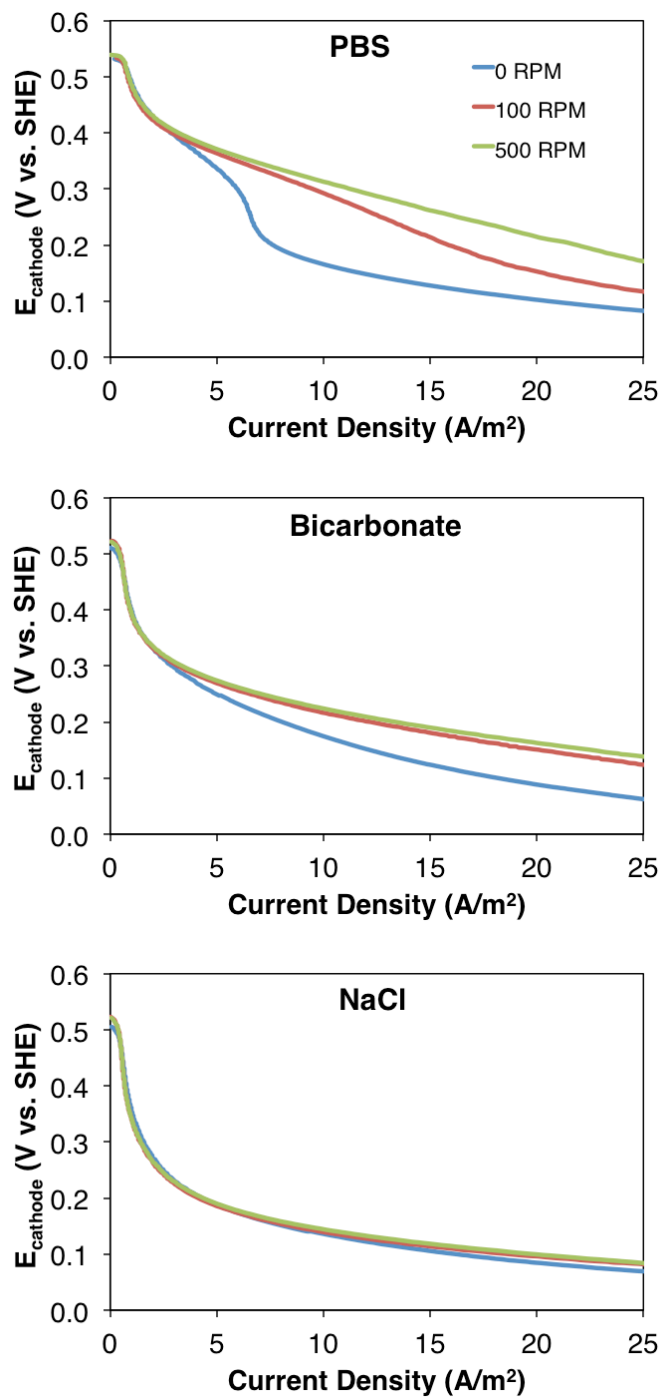


Figure S4. LSVs of Pt-based gas-diffusion cathodes in solutions of PBS, bicarbonate, and NaCl at different stirring speeds.