

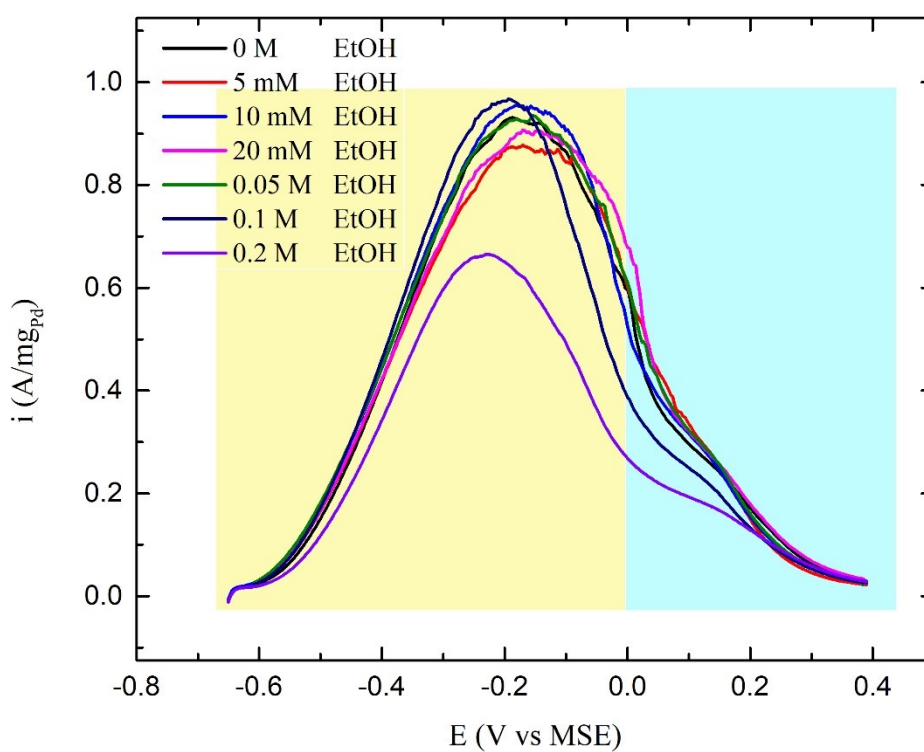
## Supporting Information

### **Mechanistic Effects of Blending Formic Acid with Ethanol on Pd activity Towards Formic Acid Oxidation in Acidic Media**

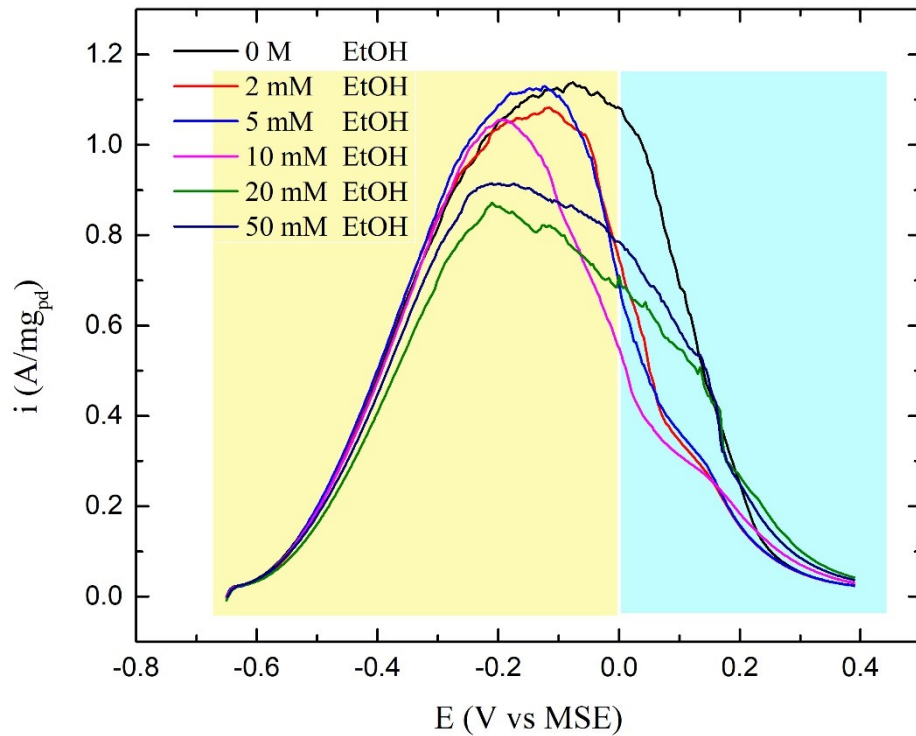
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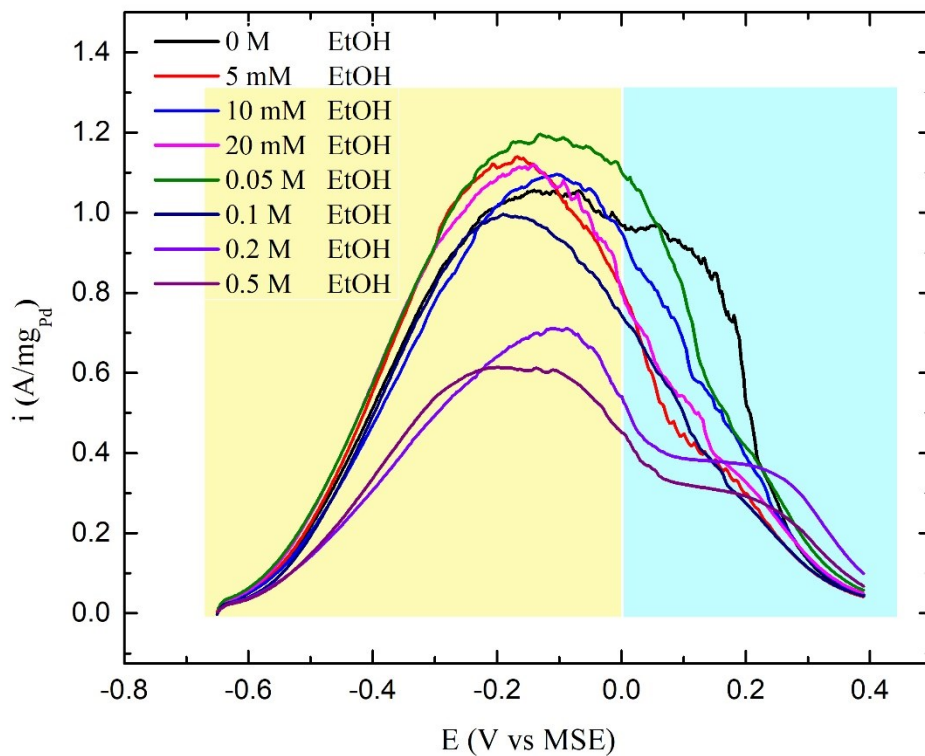
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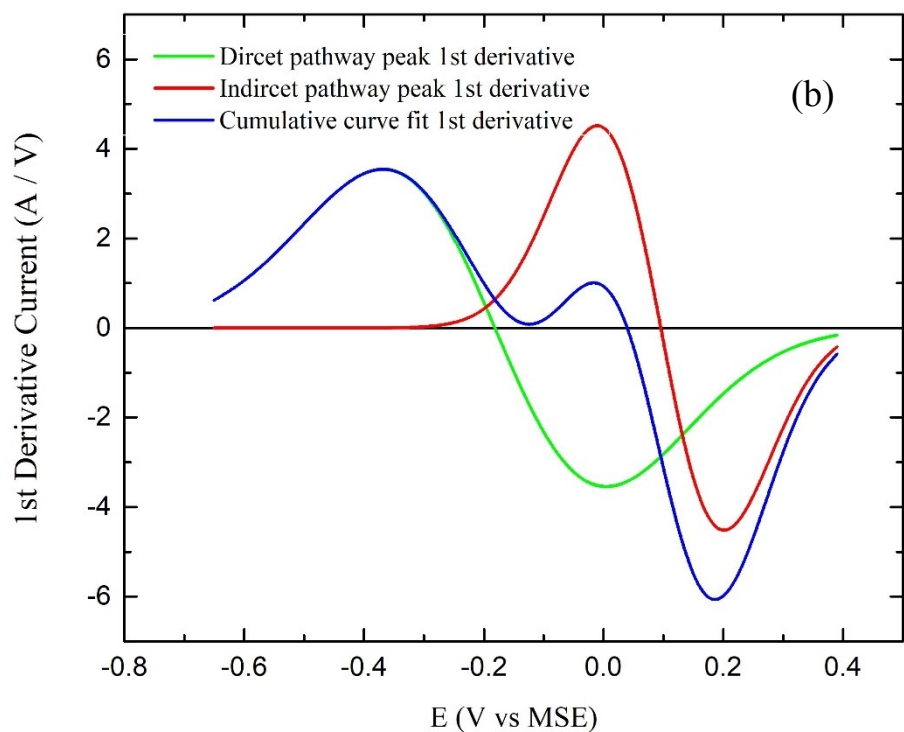
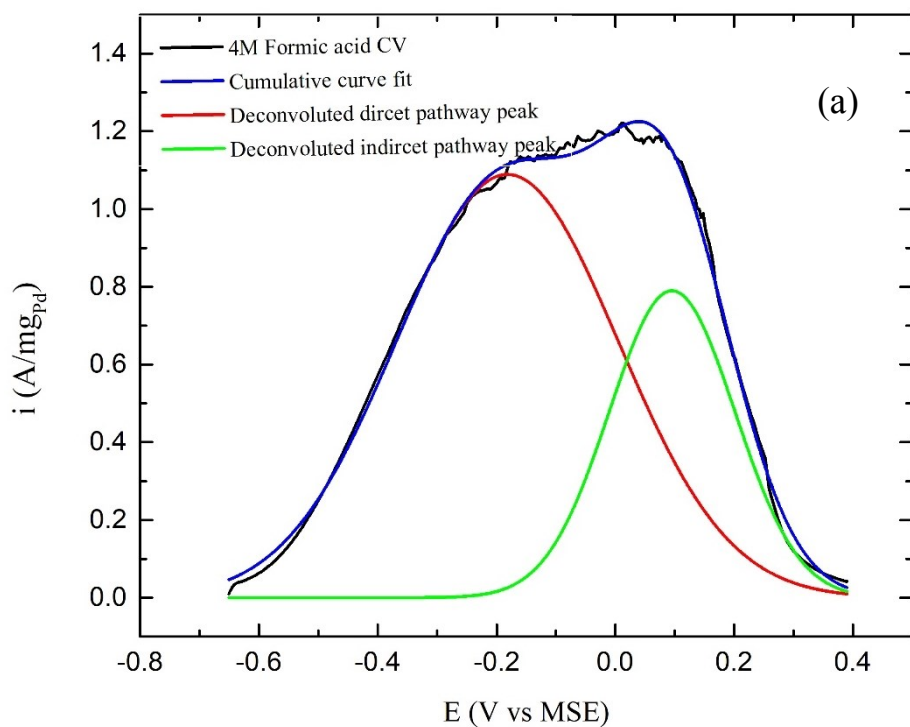
**Figure S1:** CV curves for FA-0.5 fuel blends with different ethanol concentrations



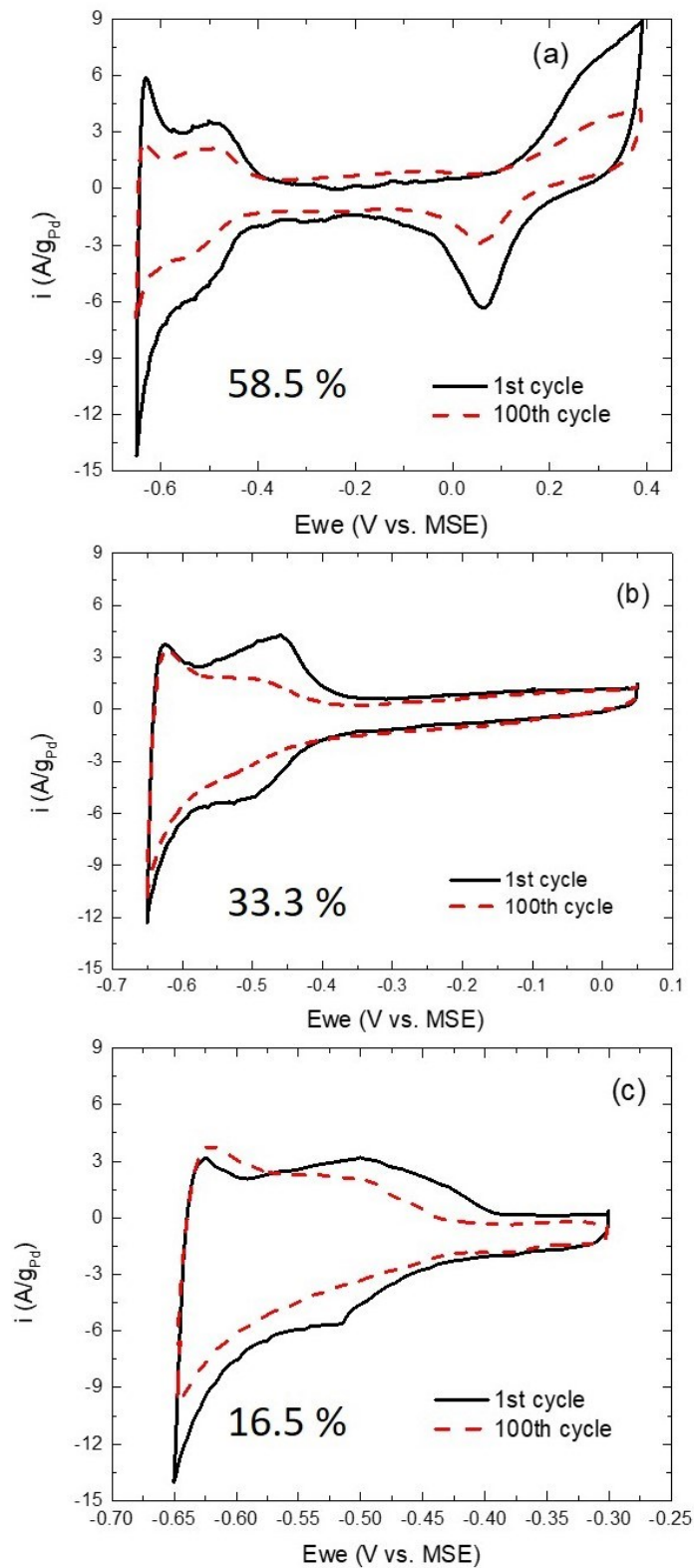
**Figure S2:** CV curves for FA-1 fuel blends with different ethanol concentrations



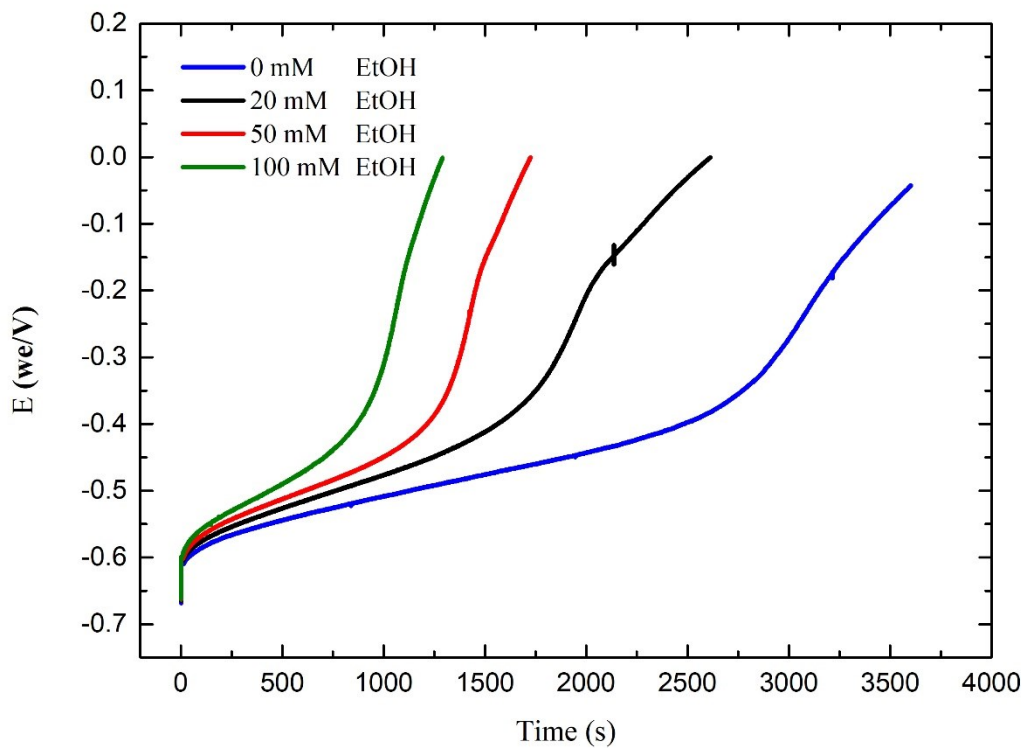
**Figure S3:** CV curves for FA-2 fuel blends with different ethanol concentrations



**Fig S4:** (a) Curve deconvolution of 4M formic acid CV, (b) 1<sup>st</sup> derivative for the deconvoluted peaks and the cumulative curve fit



**Figure S5:** A comparison between the 1<sup>st</sup> and the 100<sup>th</sup> CV curves for Pd/C catalyst in 0.1 M H<sub>2</sub>SO<sub>4</sub> using (a) 0.39, (b) 0.05, and (c) -0.3 V vs. MSE as the upper potential.



**Figure S6:** Chronopotentiometry curves of Pd/C (a) at  $50 \text{ A/g}_{\text{Pd}}$  measured in  $0.1 \text{ M H}_2\text{SO}_4 + 4 \text{ M FA}$  in presence and absence of different concentrations of EtOH.