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Electrocatalytic reduction of carbon dioxide on indium coated gas diffusion electrodes – Comparison with indium foil

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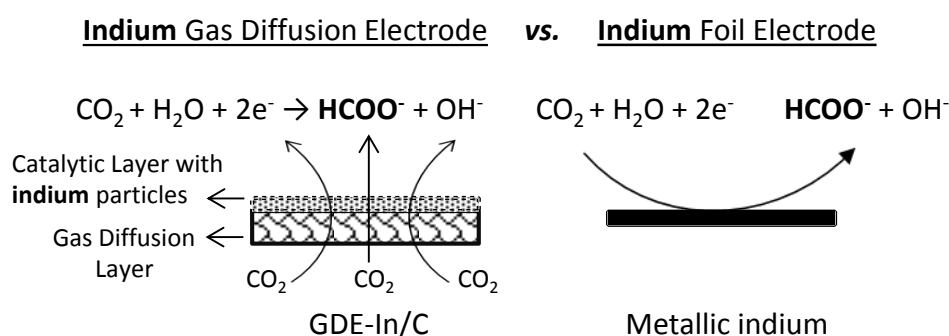
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Graphical abstract



Highlights:

- Indium coated gas diffusion electrodes (GDE-In/C) are prepared by a simple method
- Redox properties of the prepared In catalytic powder are compared to In foil
- CO₂ flow through the GDE-In/C enhanced the HCOOH current efficiency by 15%
- HCOOH partial current density on In coated GDE is 7 times greater than on In foil
- GDE-In/C allows higher impurity resistance and HCOOH current efficiency of 45%

Abstract: The electrocatalytic reduction of carbon dioxide to formic acid on metallic electrodes is known to suffer from low current density and rapid surface contamination by electrolyte impurities. Gas diffusion electrodes (GDE) can overcome these problems due to their high specific surface area. In this work, we show a simple method to prepare indium coated gas diffusion electrodes (GDE-In/C)

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