

Supporting Information

Efficient oxygen evolution reaction catalyst using Ni-Co layered double hydroxide anchored on reduced graphene oxide

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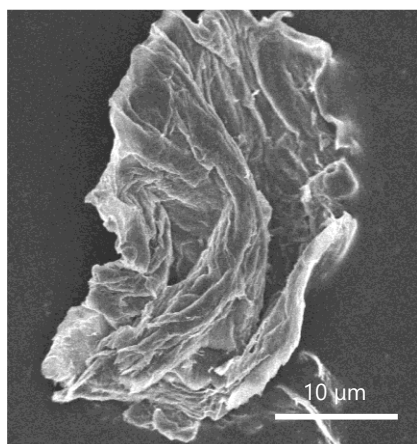


Figure S1: SEM image of rGO.

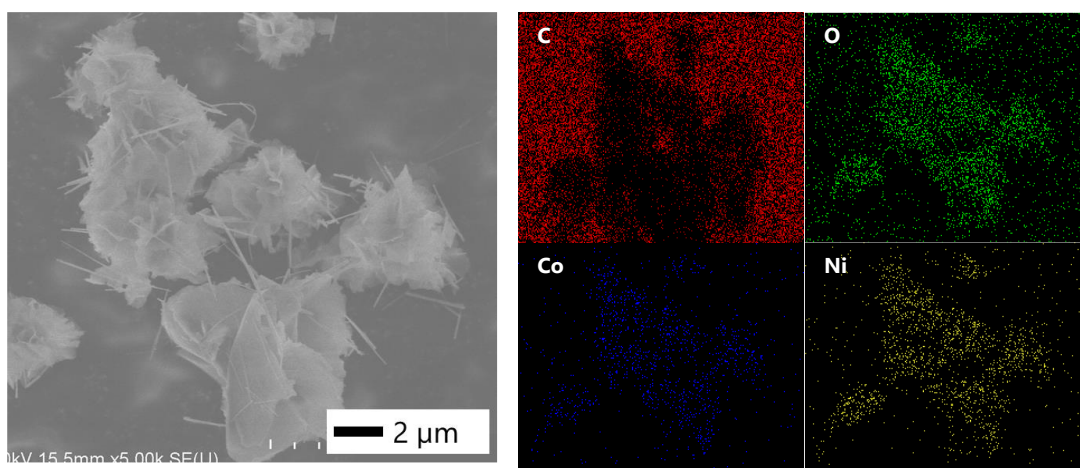


Figure S2: SEM image and corresponding EDX mapping of NiCo-LDH.

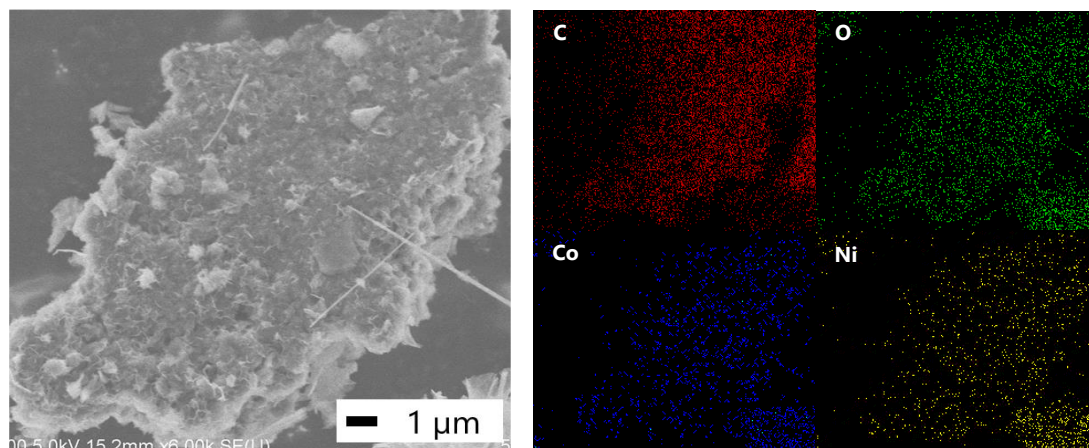


Figure S3: SEM image and corresponding EDX mapping of NiCo-LDH@rGO.

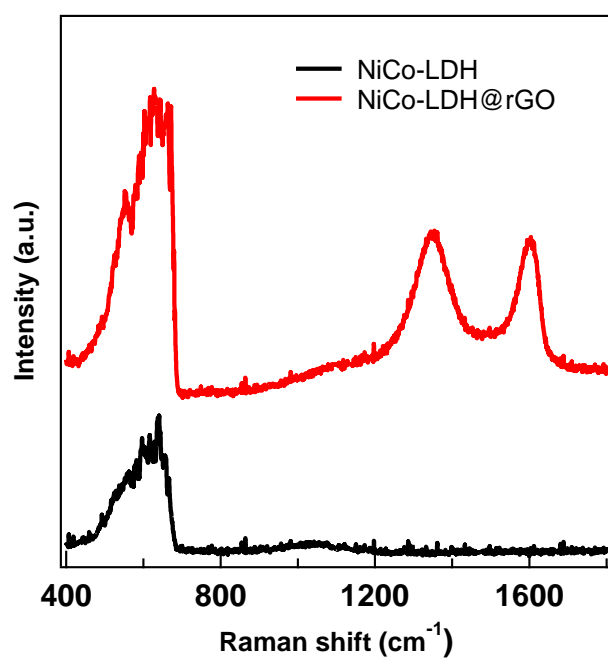


Figure S4: Raman spectrum of NiCo-LDH, and NiCo-LDH@rGO.

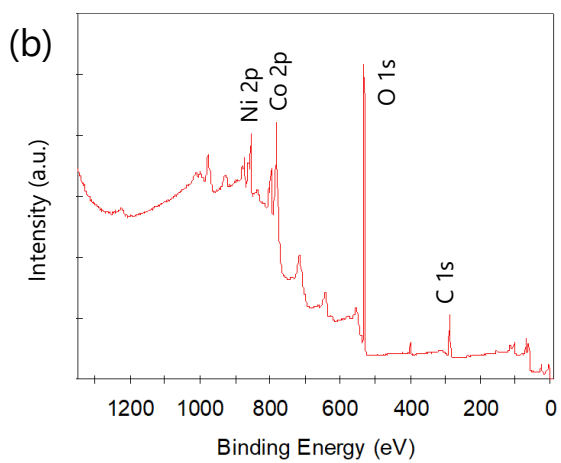
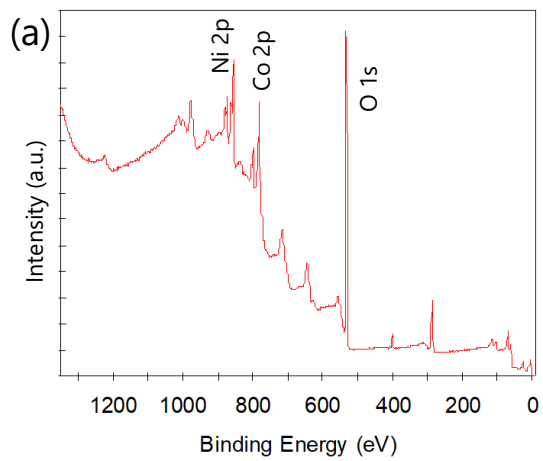


Figure S5: XPS survey spectrum of a) NiCo-LDH and b) NiCo-LDH@rGO.

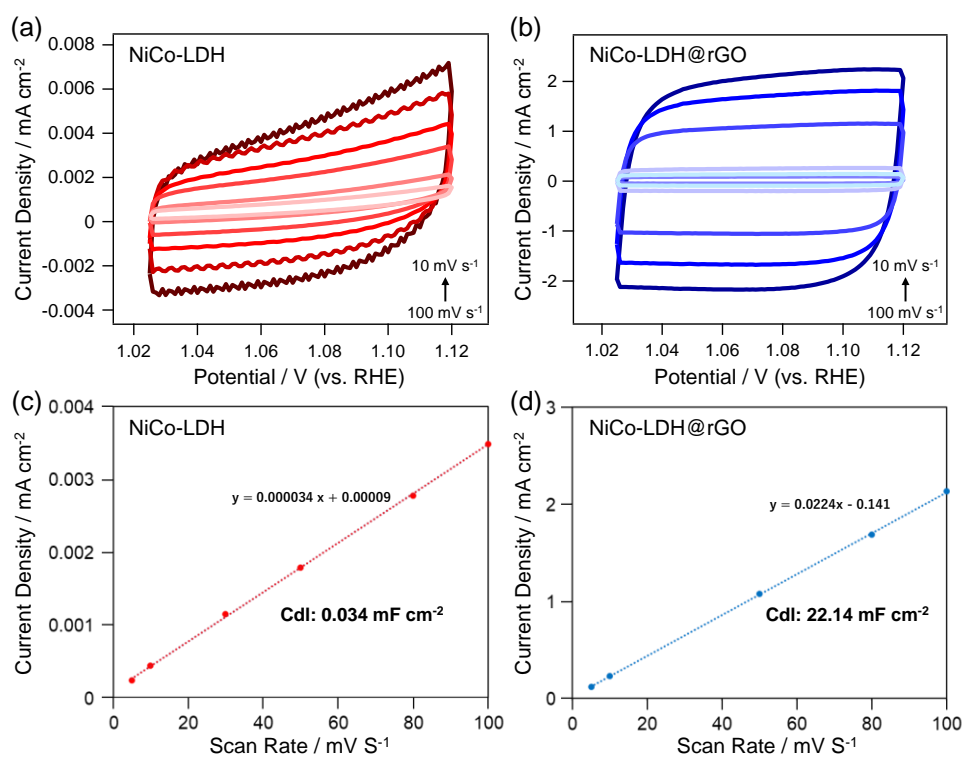


Figure S6: ECSA calculation for NiCo-LDH (a,c) and NiCo-LDH@rGO (b,d). The C_{dl} was calculated with the formula, $C_{dl} = j/r$, where j is the current density and r is the scan rate. The corresponding C_{dl} s were calculated to be 0.034 and 22.4 mF cm^{-2} from the slope of the linear fit, respectively. ECSA can be calculated as: $\text{ECSA} = C_{dl}/C_s$, where C_s is the capacitance of an atomically smooth planar electrocatalyst surface per unit area under identical conditions. The general value of C_s ranges from 20-60 $\mu\text{F cm}^{-2}$. In the following calculations of ECSA, 60 $\mu\text{F cm}^{-2}$ is used as C_s .

$$\text{ECSA}_{\text{NiCo-LDH}} = 0.034 \text{ mF cm}^{-2} / 60 \mu\text{F cm}^{-2} = 0.57$$

$$\text{ECSA}_{\text{NiCo-LDH@rGO}} = 22.4 \text{ mF cm}^{-2} / 60 \mu\text{F cm}^{-2} = 373$$