Supplementary material

The XRD spectrum of NiCo-G exhibits a prominent diffraction peak at 10°, which is a characteristic of metal alkoxide oxides [1]. The XRD spectrum of NiCo-OH obtained from the hydrolysis treatment of NiCo-G is consistent with previously reported NiCo layered hydroxides [2]. However, notable differences with NiCo-G are observed at 17.8°, 33.8°, and 60.5°, which also confirms the successful transformation of NiCo-G to NiCo-OH after hydrolysis.

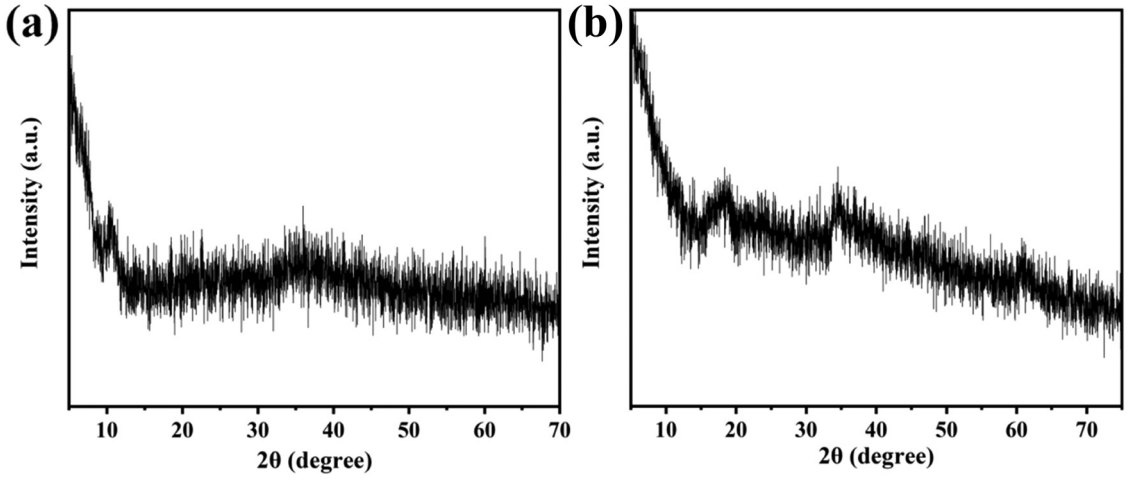

Figure S1: (a) XRD pattern of the NiCo-G sample, (b) XRD pattern of the NiCo-OH sample.

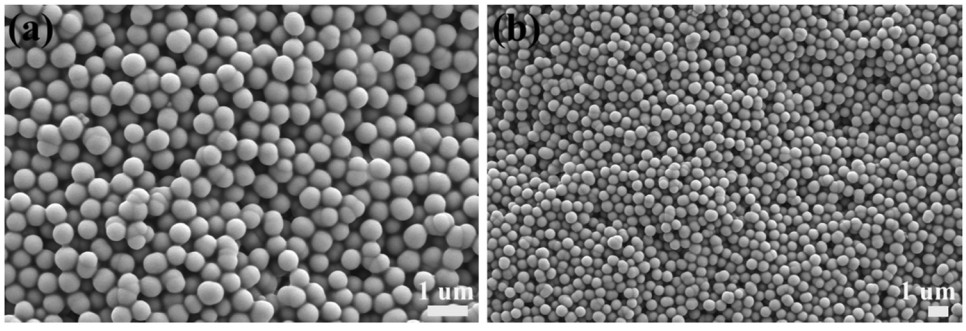

Figure S2: SEM image of the NiCo-G sample.

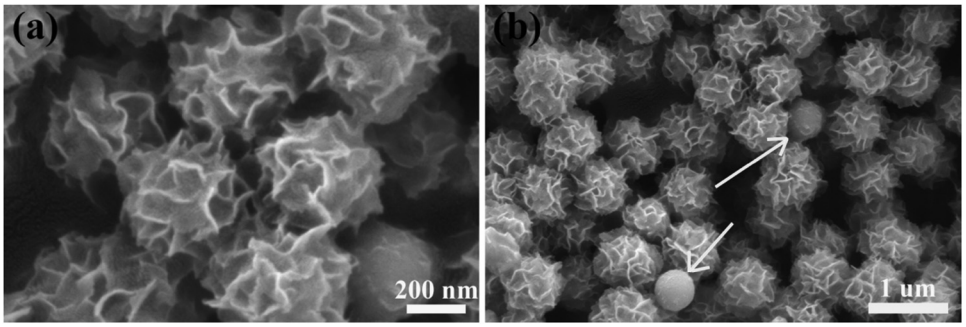

Figure S3: SEM image of the product obtained after 15 min of hydrothermal treatment of NiCo-G.

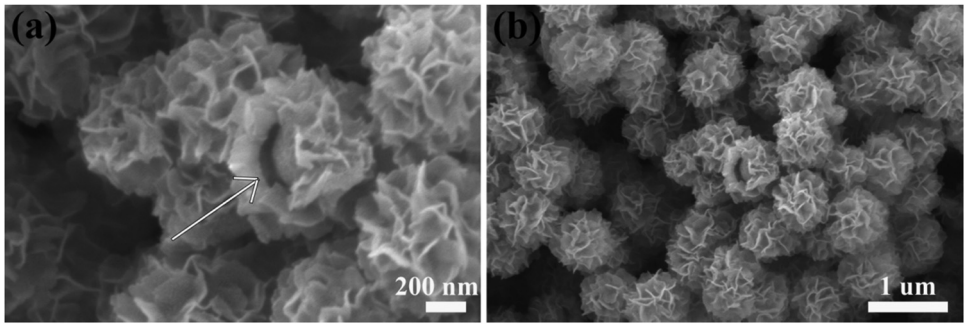

Figure S4: SEM image of the product obtained after 60 min of hydrothermal treatment of NiCo-G.

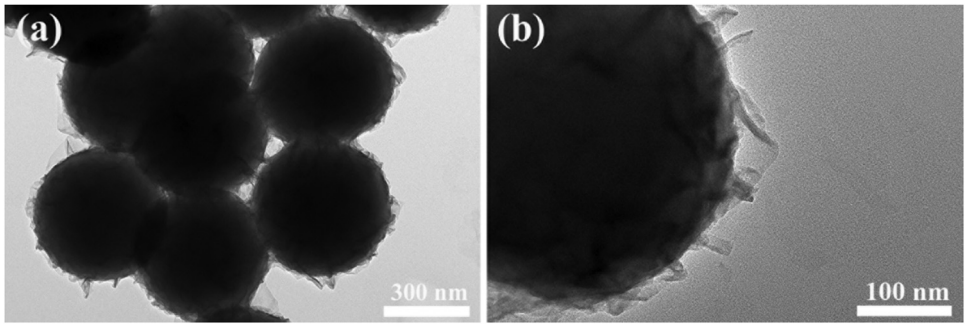

Figure S5: TEM image of the product obtained of hydrolysis reaction of NiCo-G at room temperature and pressure.

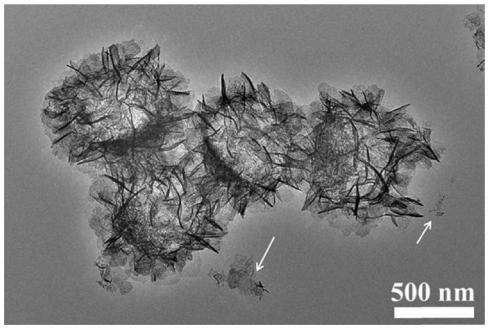

Figure S6: TEM image of NiCo-300.

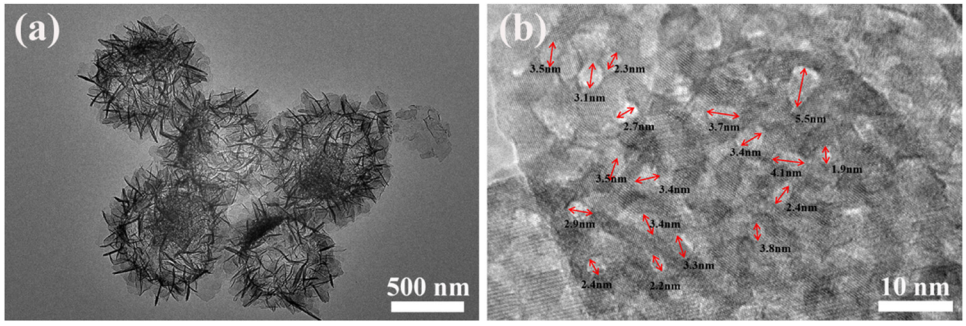

Figure S7: (a and b) TEM image of NiCo-250.

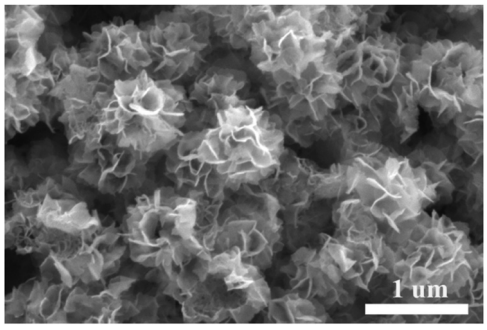

Figure S8: SEM image of NiCo-250.

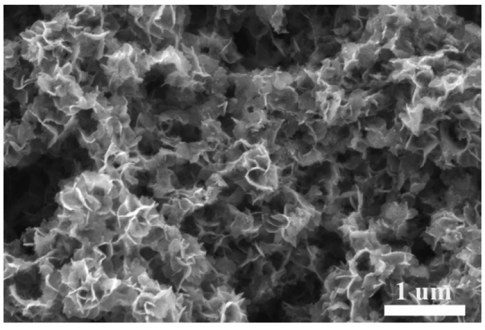

Figure S10: SEM image of NiCo-350.

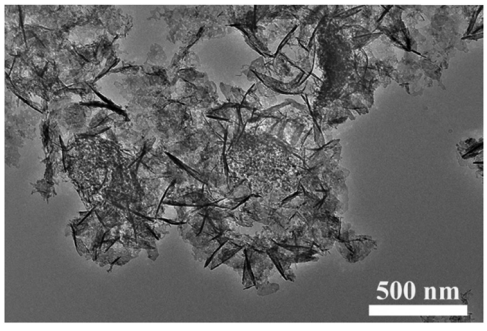

Figure S9: TEM image of NiCo-350.

Table S1: The specific area of $NiCo_2O_4$ with different morphologies

Morphologies	Specific surface area ($m^2 g^{-1}$)	Ref.
Nanobelts	66	[3]
Urchin-like	68	[4]
Nanosheets	112.6	[5]
Nanoflake - nanowire array	99.9	[6]
Hollow sub-microspheres	116	[7]

References

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[2] Wang C, Zhang X, Xu Z, Sun X, Ma Y. Ethylene Glycol-intercalated cobalt nickel layered double hydroxide nanosheet assemblies with ultrahigh specific capacitance: structural design and green synthesis for advanced electrochemical storage. ACS Appl Mater Interfaces. 2015;7(35):19601–10.

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