MOF-Derived Urchin-like Co_9S_8-Ni_3S_2 Composites on Ni Foam as Efficient self-supported Electrocatalysts for Oxygen Evolution Reaction

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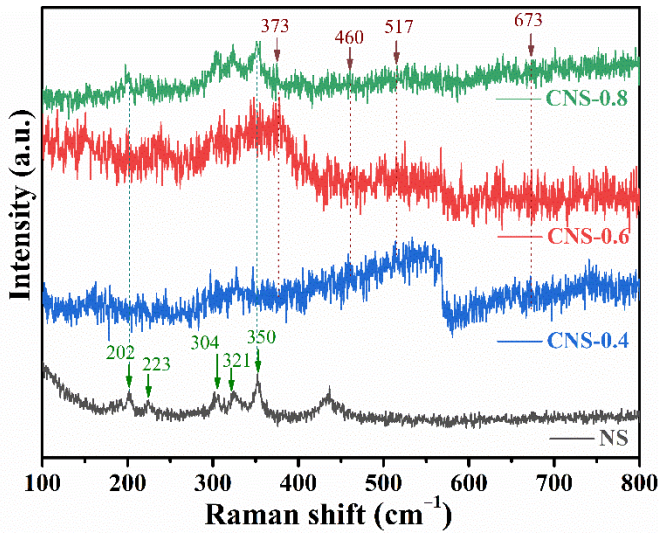

Figure S1. Raman spectra of Ni_3S_2/NF (NS), Co_9S_8-Ni_3S_2/NF-0.4 (CNS-0.4), Co_9S_8-Ni_3S_2/NF-0.6 (CNS-0.6), and Co_9S_8-Ni_3S_2/NF-0.8 (CNS-0.8) samples.

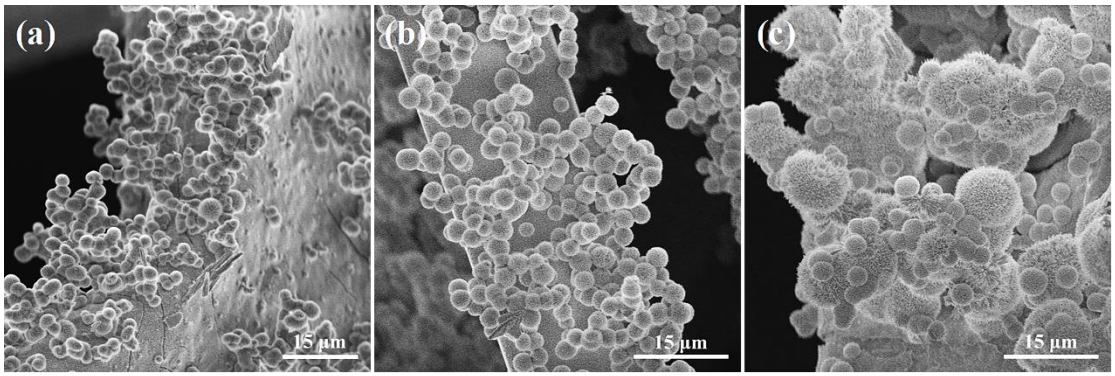

Figure S2. SEM images of (a) Co_9S_8-Ni_3S_2/NF-0.4, (b) Co_9S_8-Ni_3S_2/NF-0.6, and (c) Co_9S_8-Ni_3S_2/NF-0.8 electrodes.

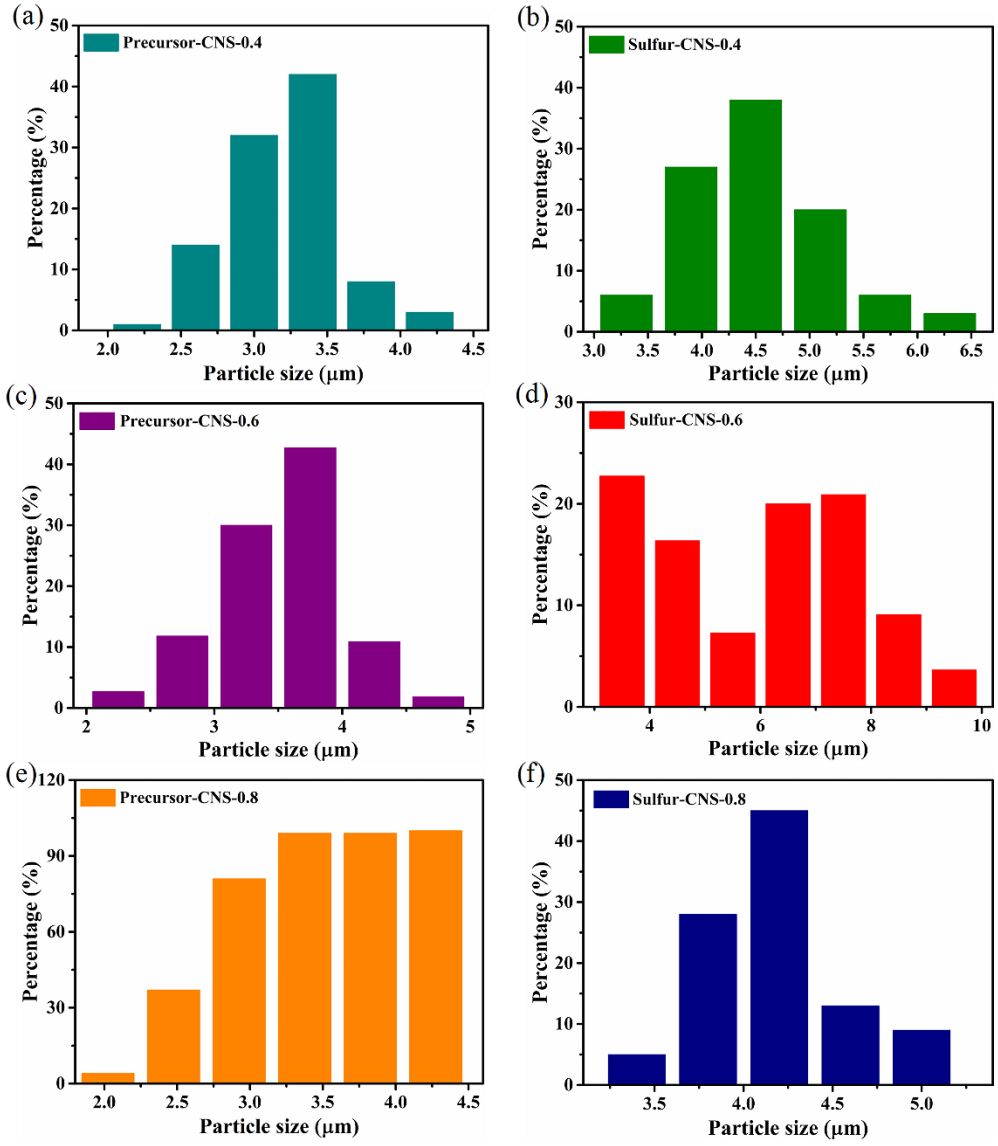

Figure S3. Particle size distribution images of (a-b) Co_9S_8-Ni_3S_2/NF-0.4, (c-d) Co_9S_8-Ni_3S_2/NF-0.6, and (e-f) Co_9S_8-Ni_3S_2/NF-0.8.

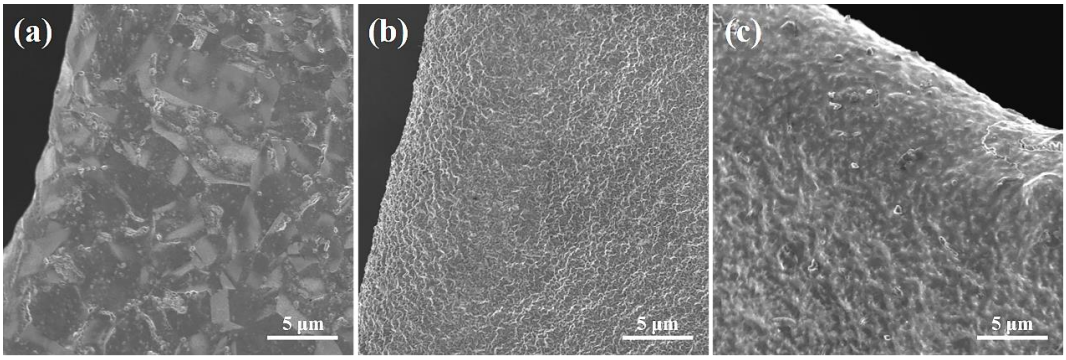

Figure S4. SEM images of (a) precursor of Ni_3S_2/NF, (b) after vulcanization, and (c) after stability test.

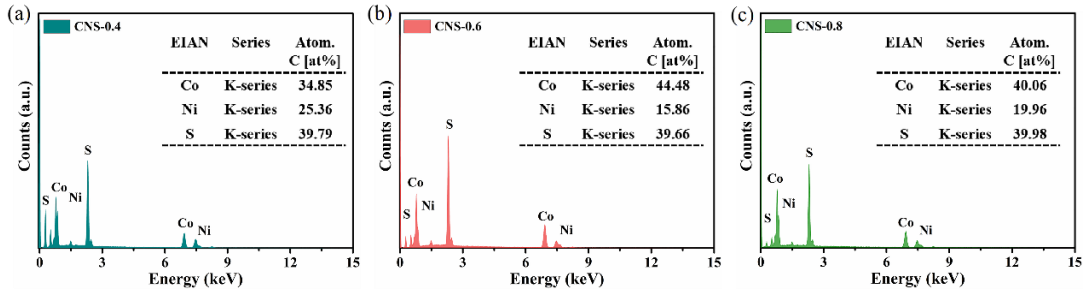

Figure S5. EDS diagrams of (a) Co_9S_8-Ni_3S_2/NF-0.4, (b) Co_9S_8-Ni_3S_2/NF-0.6, and (c) Co_9S_8-Ni_3S_2/NF-0.8 samples peeled from Ni foams.

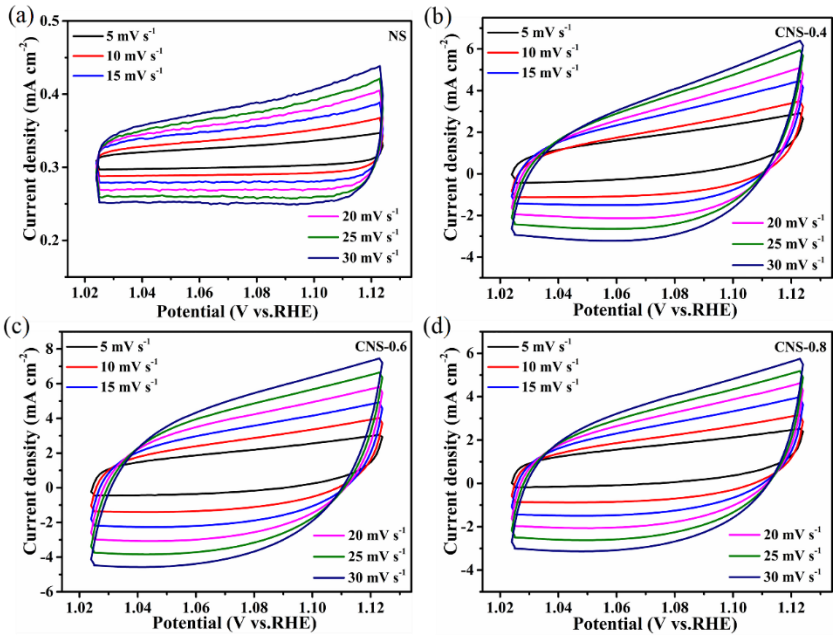

Figure S6. CV plots of Ni_3S_2/NF, Co_9S_8-Ni_3S_2/NF-0.4, Co_9S_8-Ni_3S_2/NF-0.6, and Co_9S_8-Ni_3S_2/NF-0.8 electrodes with different scan rates.

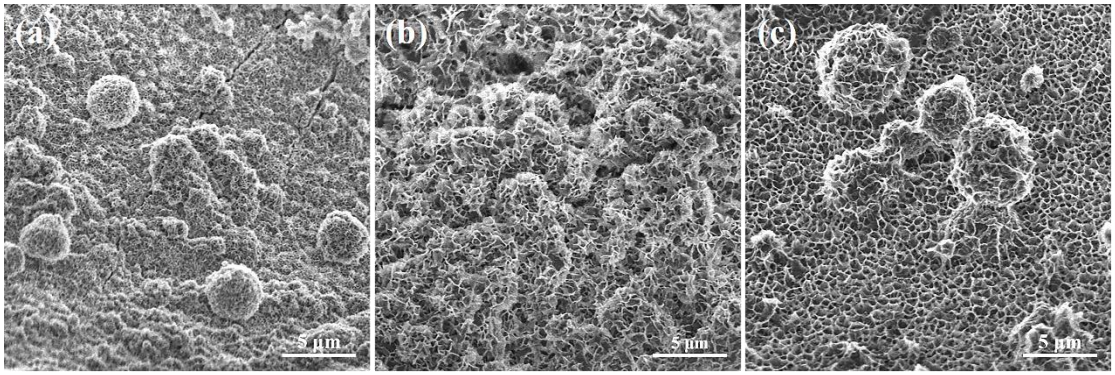

Figure S7. SEM images of (a) Co_9S_8-Ni_3S_2/NF-0.4, (b) Co_9S_8-Ni_3S_2/NF-0.6 and (c) Co_9S_8-Ni_3S_2/NF-0.8 after stability test.

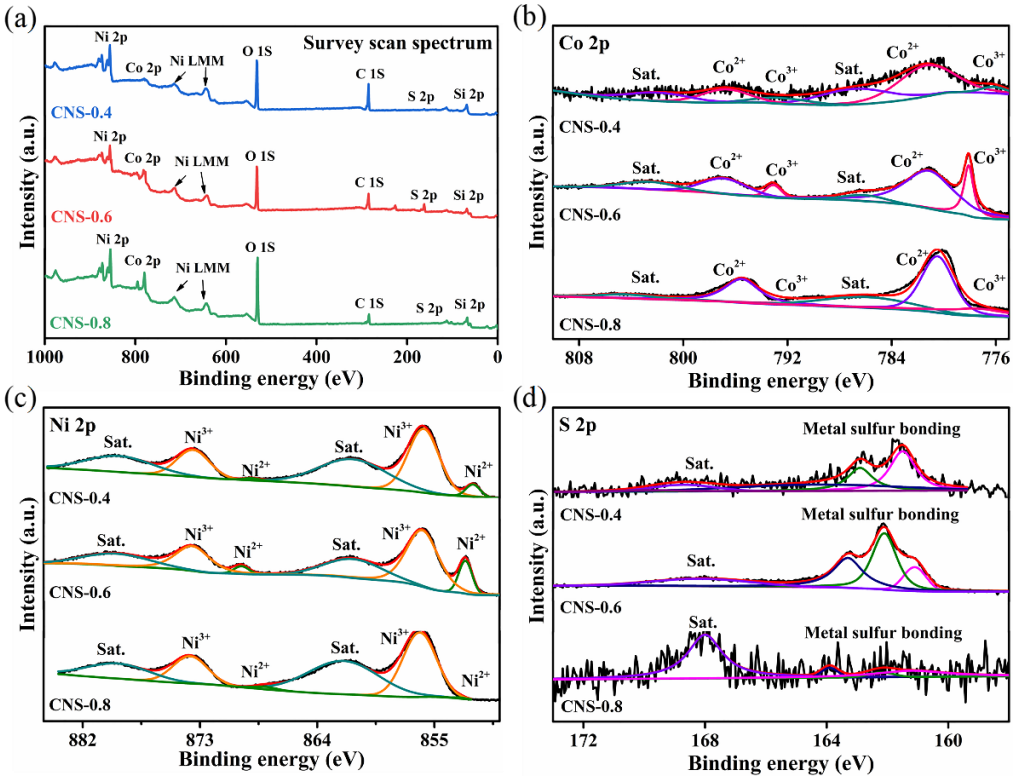

Figure S8. XPS images of Co_9S_8-Ni_3S_2/NF-0.4, Co_9S_8-Ni_3S_2/NF-0.6, and Co_9S_8-Ni_3S_2/NF-0.8 after OER stability test, (a) survey spectra, high-resolution spectra of (b) Co 2p, (c) Ni 2p, and (d) S 2p.

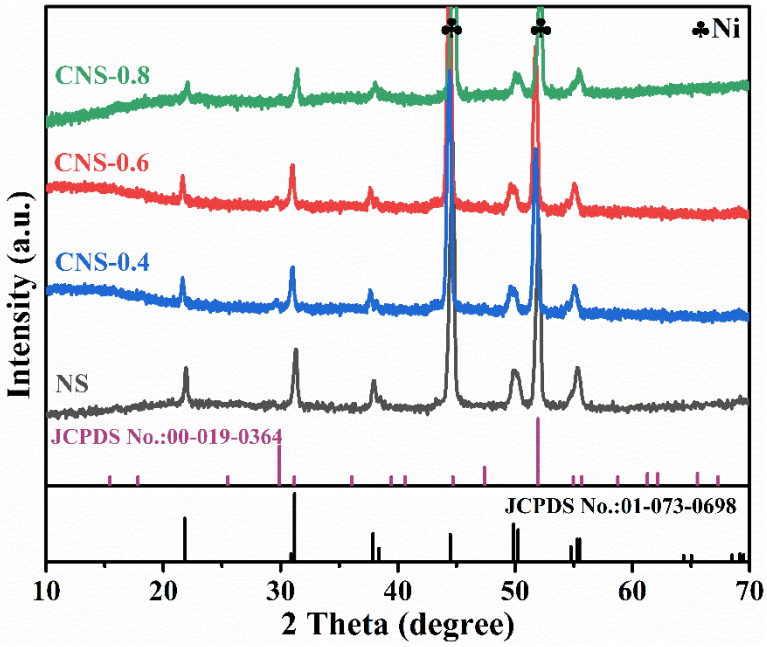

Figure S9. PXRD patterns after OER stability test.