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Supplementary Materials

Direct One-Step Growth of Bimetallic Ni_2Mo_3N on Ni Foam as an Efficient Oxygen Evolution Electrocatalyst

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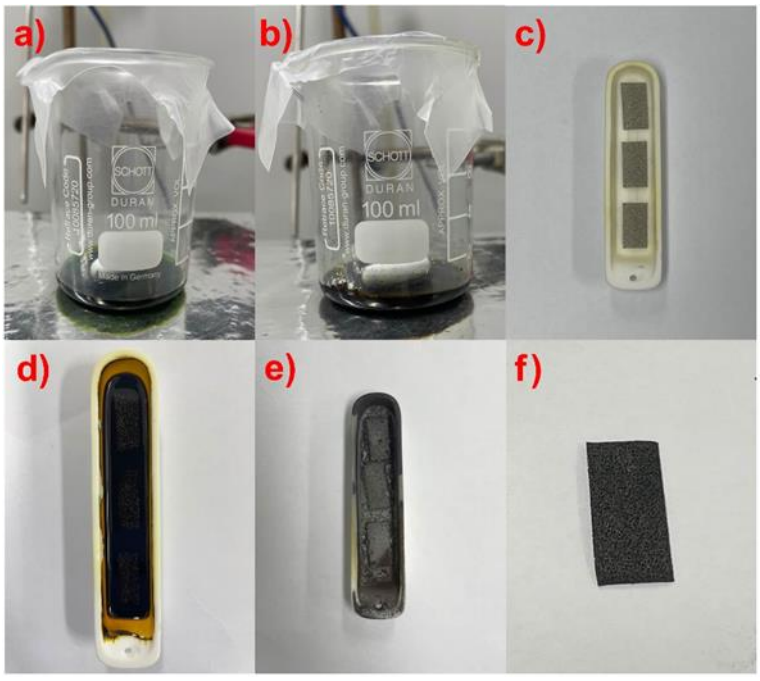

Figure S1. Digital photographs for the synthetic procedure: (**a**) $MoCl_5$ was dissolved in ethanol to form a dark-greenish solution; (**b**) The addition of urea to the solution yielded a viscous Mo-urea complex; (**c,d**) Ni foams and Mo-urea complex were transferred to an alumina boat and annealed at 600 °C for 3 h under N_2 flow; (**e,f**) Consequently, Ni_2Mo_3N nanoparticles grown directly on nickel foam were fabricated.

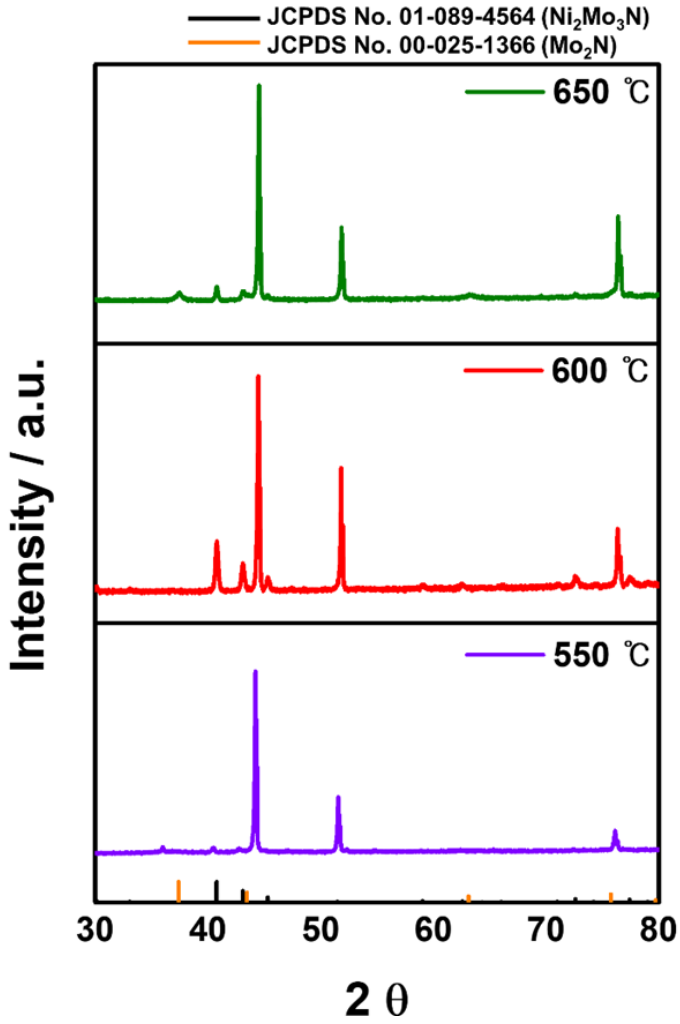

Figure S2. XRD patterns of prepared samples with various annealing temperatures.

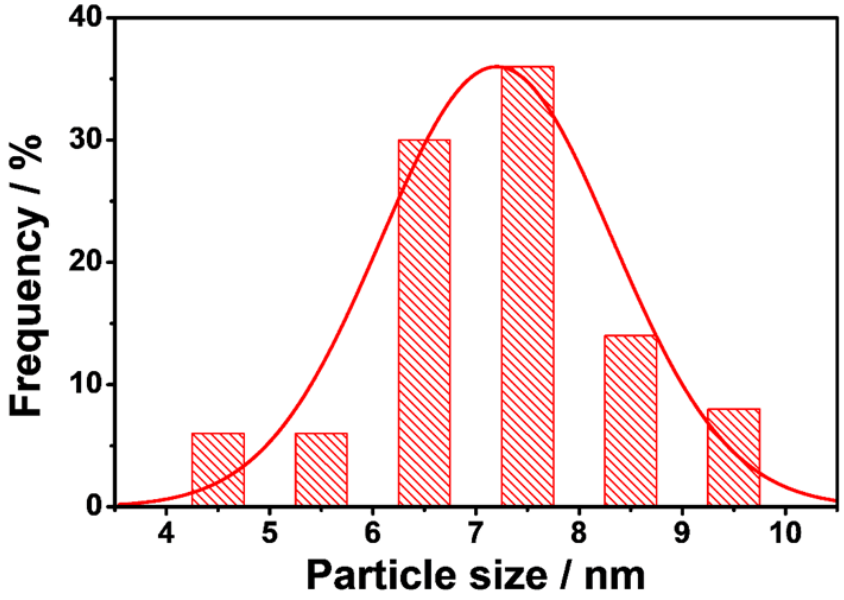

Figure S3. Histogram showing the particle size distribution of Ni_2Mo_3N nanoparticles from the TEM images.

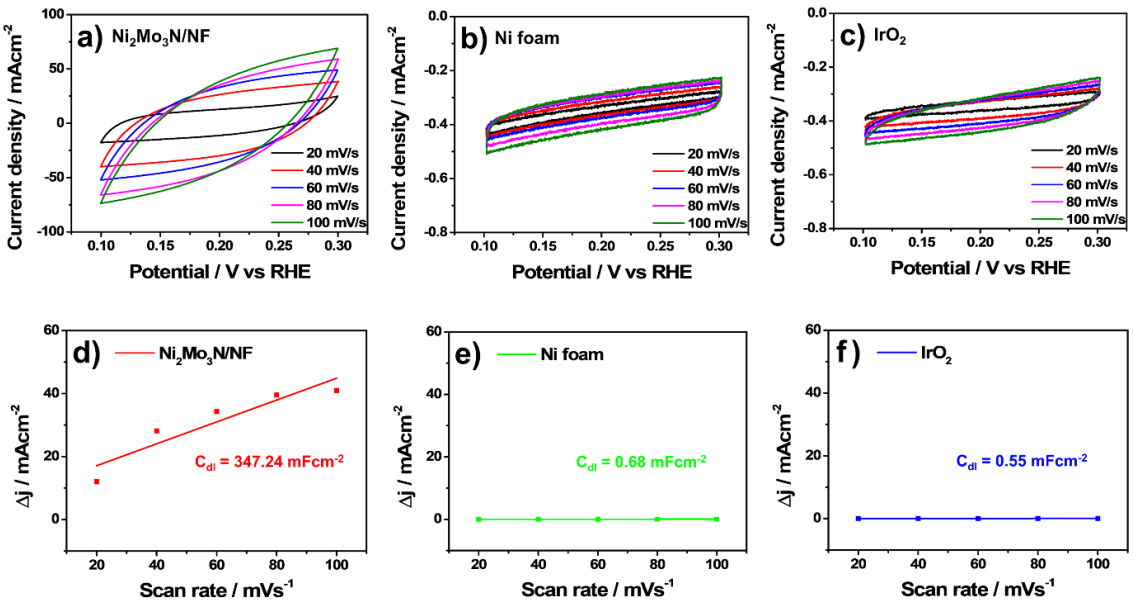

Figure S4. Cyclic voltammograms of a) Ni_2Mo_3N/NF, b) pristine Ni foam and c) IrO_2 at different scan rates in 1.0 M KOH solution. d-f) The corresponding current density versus scan rate plots showing C_{dl} values for Ni_2Mo_3N/NF, pristine Ni foam and IrO_2.

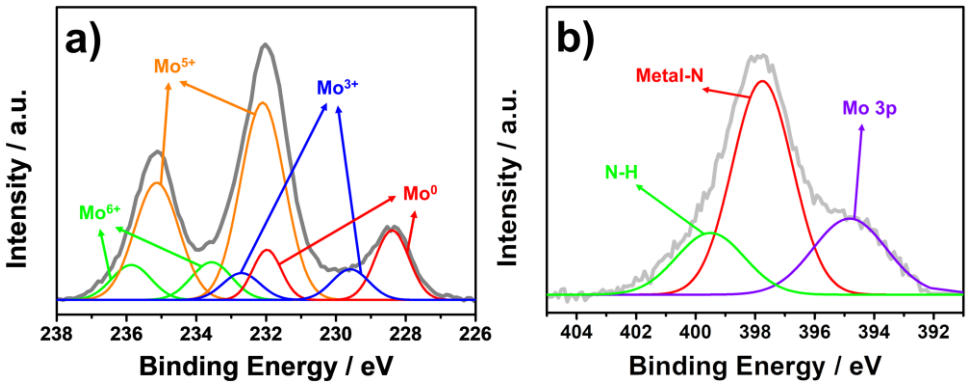

Figure S5. XPS spectra of Ni_2Mo_3N/NF after Ar-sputtering in the a) Mo 3d and b) N 1s, respectively.

Table S1. Comparison of OER performances in alkaline media with reported TMN-based catalysts.

Catalyst	η_{10} (mV)	η_{50} (mV)	η_{100} (mV)	Electrolyte	Ref.
Ni_2Mo_3N/NF		336.38	392.49	1 M KOH	This work
Co-Mo_2N	302	400	≒ 485	1 M KOH	[1]
Ni/$Ni_{0.2}Mo_{0.8}N$@N-C	260	≒ 370		1 M KOH	[2]
Zn-Ni_3FeN/NG	370			0.1 M KOH	[3]
NiMoN-550	295	≒ 365	≒ 390	1 M KOH	[4]
CuFeN/CNT		≒ 375	392	1 M KOH	[5]
Ni_3FeN-NPs	241	≒ 340	≒ 430	1 M KOH	[6]
NiCoN/CC	360	≒ 400		1 M NaOH	[7]
VN-Co-P	335	≒ 460		1 M KOH	[8]
Ni_3FeN	355	≒ 560		0.1 M KOH	[9]
NiCo-nitrides/$NiCo_2O_4$/GF	183	344	≒ 430	1 M KOH	[10]
PF/$Ni_{1.5}Co_{1.5}N$	280	≒ 380		1 M KOH	[11]
Co_4N	330	≒ 375		1 M KOH	[12]

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