Supplementary Materials: A Cost-Effective, Nanoporous, High-Entropy Oxide Electrode for Electrocatalytic Water Splitting

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Table S1. Lattice parameters of different metal oxides.

Materials	a (Å)	b (Å)	c (Å)	α(°)	β(°)	γ(°)	Crystal system
CuO [48]	4.689	3.469	5.115	90	99.309	90	monoclinic
Fe_3O_4 [49]	8.396	8.396	8.396	90	90	90	spinel
Co_3O_4 [50]	8.082	8.082	8.082	90	90	90	spinel
NiO [51]	4.1768	4.1768	4.1768	90	90	90	rock salt
CrO_2 [52]	4.419	4.419	2.912	90	90	90	rutile

Table S2. Refinement parameters of the HEO-3CFN composite.

Space group (crystal system)	a (Å)	b (Å)	c (Å)	α(°)	β(°)	γ(°)	wt(%)
$Fd\bar{3}m$ (spinel)	8.2681	8.2681	8.2681	90.0	90.0	90.0	78.5
$C2/m$ (monoclinic)	4.6817	3.4155	5.1215	90.0	99.4	90.0	21.5

**Table S3.** The atomic ratio of five elements in as-synthesized HEO-3CFN.[1]

Sample	Cu	Ni	Co	Fe	Cr
HEO-3CFN	0.1983	0.1983	0.1994	0.1962	0.2078

1. Inductively coupled plasma mass spectrometry (ICP-MS) was used.

Table S4. OER performance of HEO electrodes.

Catalysts	Substrate	Electrolytes	η (mV)	t (mV/ dec)	Ref.
HEO-3CNF	FTO	1 M KOH	518.1	119.7	This work
$(CoNiCuZnMg)Fe_2O_4$	FTO	1 M KOH	500	—	[92]
$(MnNiCu)MoO_4$	GCE	1 M KOH	600	159.7	[93]

η equal to overpotential (mV); and t presents the Tafel slope (mV/dec) at the current density of 10 mA/cm^2.
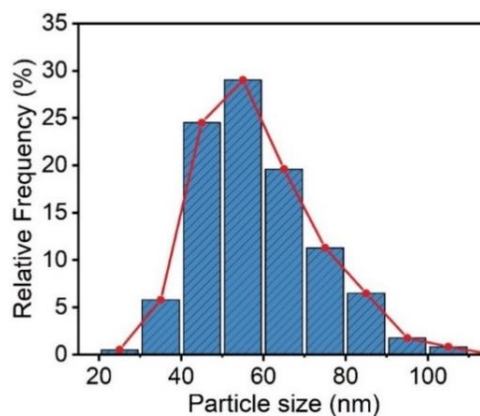
Figure S1. Particle size distribution of HEO-3CFN powders.
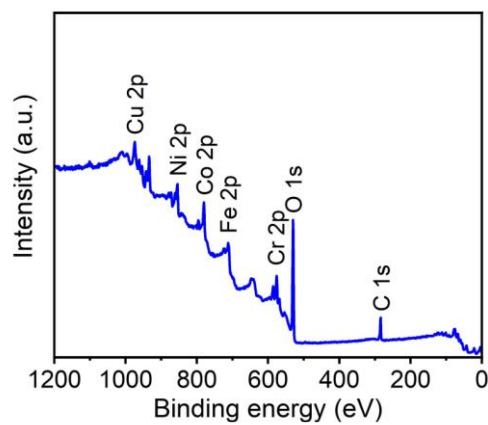
Figure S2. XPS full survey spectrum of HEO-3CFN powders.

The C 1s peak originated from exposure of the sample to air (Journal of Wuhan University of Technology-Mater. Sci. Ed. 35, 711-718, 2020 and Applied Surface Science, 597, 153681, 2022).