

The controllable synthesis of NiO/Ni/C nanosheets via pulsed plasma in ethylene glycol solution for oxygen evolution electrocatalysis

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Table S1 Parameters of the pore structure characteristics.

Sample	S _{BET} (m ² g ⁻¹)
EG0	153
EG10	211
EG30	149
EG50	147
EG70	148
EG90	116

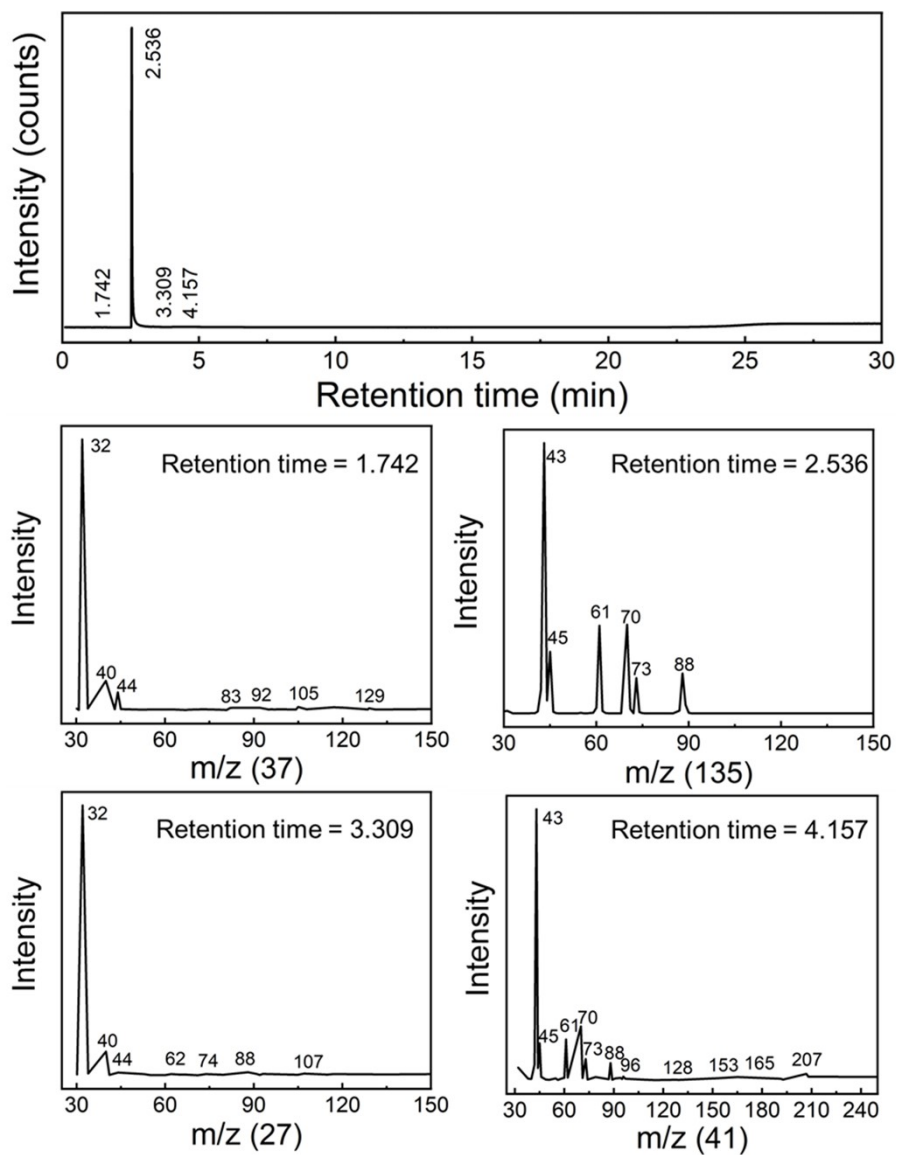


Fig. S1 GC-MS spectrometry of EG solution after reaction.

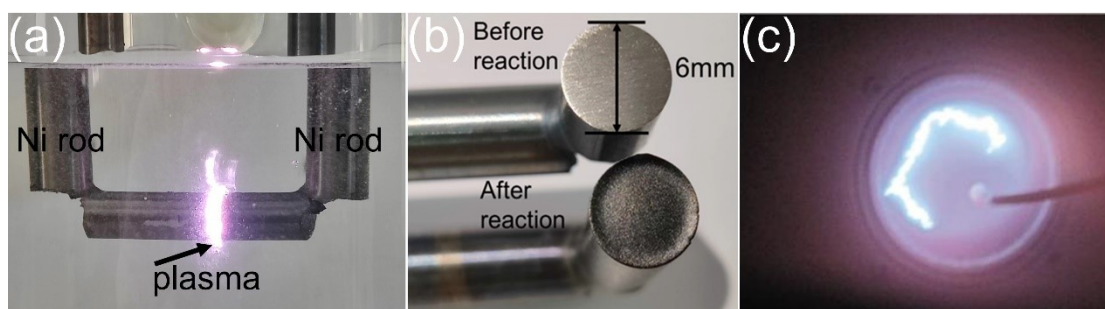


Fig. S2 (a) discharge process of pulsed plasma, (b) appearance of nickel rods before and after plasma action, (c) the process of multi-arc ion plating.

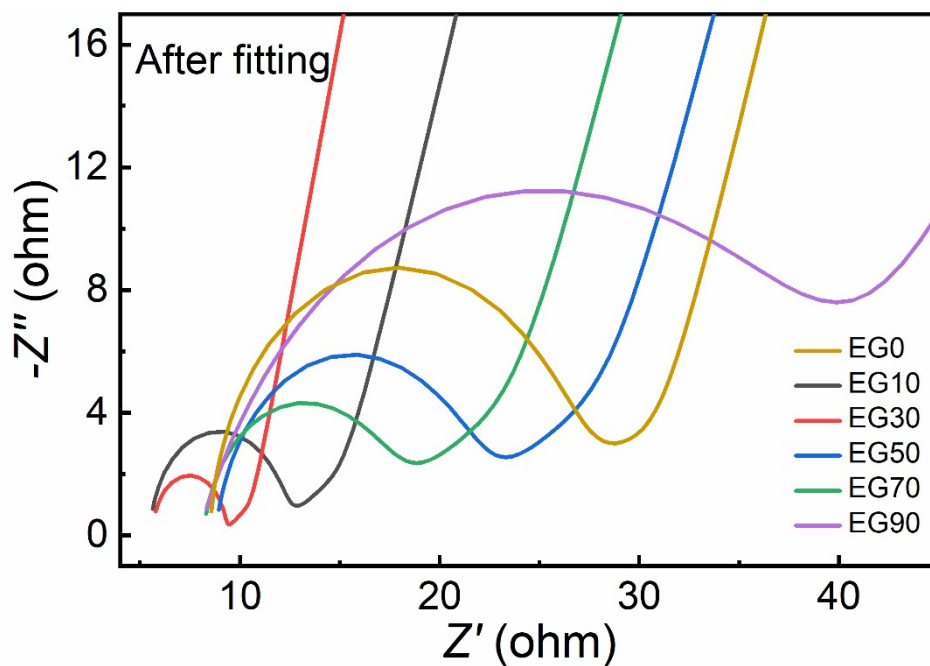


Fig. S3 Fitted EIS Nyquist plots.

Table S2 Organic components that may be present after reaction.

Retention time (min)	Components
1.742	Hydrazinecarboxamide, Carbonic dihydrazide, Hydrazine, Acetic acid
2.536	Ethyl Acetate, Ethyl acetate, Methylolacetone, Pentanoic acid, Methanol, Acetic acid
3.309	Carbonic dihydrazide, Hydrazinecarboxamide, Hydrazine, Propanoic acid
4.157	Ethyl Acetate, Methylolacetone, Methanol, 2-Butanone, Propanoic acid

Table S3 OER performance parameters of different samples.

Sample	Overpotential (mV)	Tafel slope (mV dec ⁻¹)	C _{dl} ($\mu\text{F cm}^{-2}$)	R _{ct} (Ω)
EG0	364.4	93.71	118.35	17.52
EG10	304.4	101.52	218.99	6.428
EG30	289.2	88.29	357.32	3.437
EG50	331.78	99.3	118.21	12.4
EG70	344.6	100.34	129.01	8.819
EG90	360.8	132.67	86.37	32.81

Table S4 EIS fitted data table of different samples.

Sample	EG0	EG10	EG30	EG50	EG70	EG90
R1	8.49	5.531	5.689	8.786	8.168	7.929
R2	17.52	6.428	3.437	12.4	8.819	32.81
W1-R	13.48	8.543	3.854	19.51	18.05	1149
W1-T	0.02921 1	0.050417	0.039699	0.086622	0.057272	16.11
W1-P	0.3912	0.39045	0.41274	0.38459	0.38468	0.62236
CPE1-T	2.982E-6	1.5641E-6	7.6703E-7	4.7506E-6	5.5445E-6	4.5392E-5
CPE1-P	0.96578	1.007	1.068	0.92575	0.92679	0.74904