Table 1. The hydrogen evolution performance of HER electrocatalysts

Electrocatalysts	Dealloying method	Electrolyte	Tafel Slope (mV dec^{-1})	*j*(mA cm^{-2})	Overpotential (mV vs. RHE)	Ref.
Ag_2S/CuS	Chemical	0.5 M H_2SO_4	75	10	~200	S1
Pt_3Co/C	Chemical	0.1 M KOH	34	10	280	S2
$Al_{82}Ni_6Co_3Mn_3Y_3Au_3$	Chemical	0.5 M H_2SO_4	43	10	24	S3
PdPtCuNiP	Chemical	1.0 M KOH	37.4	10	32	S4
$(Co_{0.52}Fe_{0.48})_2P$	Electrochemical	0.5 M H_2SO_4	45	10	64	S5
C-Co_2P	Electrochemical	1.0 M KOH	36.9	10	30	S6
Ni(Cu)/NF	Electrochemical	1.0 M KOH	33.3	10	27	S7
$Co_{65}Mo_{15}P_{20}$	Electrochemical	1.0 M KOH	46.2	10	40.8	S8
$PdCu_3$	Electrochemical	0.5 M H_2SO_4	34	25	~69	S9

Table 2. The oxygen evolution performance of OER electrocatalysts

Electrocatalysts	Dealloying method	Electrolyte	Tafel Slope (mV dec^{-1})	j (mA cm^{-2})	Overpotential (mV vs. RHE)	Ref.
NiO	Chemical	1.0 M KOH	76.73	20	356	S10
Ni-Fe-O	Chemical	1.0 M KOH	39	10	244	S11
CoFe-LDH	Chemical	1.0 M KOH	45	10	286	S12
P-IrCu$_{1.4}$ NCs	Chemical	0.05 M H_2SO_4	53.9	12.8	1550	S13
FeCo(Mn)-O/NF	Chemical	1.0 M KOH	44.5	10	235	S14
$(Co_{0.52}Fe_{0.48})_2P$	Electrochemical	1.0 M KOH	30	10	270	S5
FeNiNbPC	Electrochemical	6.0 M KOH	36.1	10	248	S15
NP-Ru$_x$	Electrochemical	1.0 M KOH	15	10	245	S16

Table 3. The oxygen reduction performance of ORR electrocatalysts (Electrolyte: 0.1 M $HClO_4$)

Electrocatalysts	Dealloying method	MA (0.9 V) (A/mg_{Pt})	SA (0.9 V) (mA/cm^2)	Half-wave Potential/V	Ref.
Pt-Co/C-2h	Chemical	~0.43	—	—	S17
Pt_3Co/C	Chemical	0.26	0.55	0.92	S18
$PtNi_3/C$	Chemical	0.6	0.51	0.91	S19
Cu_3Pt/C	Electrochemical	0.9	0.45	0.91	S20
$PtNi_3/C$	Electrochemical	0.81	2.27	0.92	S21
Pt-Cu-Co	Electrochemical	0.49	0.44	—	S22
Au-Ni	Electrochemical	—	0.46	0.91	S23
$PtCu_3/C$	Electrochemical	0.44	—	~0.91	S24

References

S1 H. Ren, W. Xu, S. Zhu, Z. Cui, X. Yang and A. Inoue, *Electrochim. Acta*, 2016, **190**, 221-228.

S2 M. Saquib and A. Halder, *J. Solid State Chem.*, 2018, **262**, 229-236.

S3 X. Liu, S. Ju, P. Zou, L. Song, W. Xu, J. Huo, J. Yi, G. Wang and J.-Q. Wang, *J. Alloy. Compd.*, 2021, **880**, 160548.

S4 Z. Jia, K. Nomoto, Q. Wang, C. Kong, L. Sun, L.-C. Zhang, S.-X. Liang, J. Lu and J. J. Kruzic, *Adv. Funct. Mater.*, 2021, **31**, 2101586.

S5 Y. Tan, H. Wang, P. Liu, Y. Shen, C. Cheng, A. Hirata, T. Fujita, Z. Tang and M. Chen, *Energy Environ. Sci.*, 2016, **9**, 2257–2261.

S6 W. Xu, G. Fan, S. Zhu, Y. Liang, Z. Cui, Z. Li, H. Jiang, S. Wu and F. Cheng, *Adv. Funct. Mater.*, 2021, **31**, 2107333.

S7 Q. Sun, Y. Dong, Z. Wang, S. Yin and C. Zhao, *Small*, 2018, **14**, 1704137.

S8 W. Tang, S. Zhu, H. Jiang, Y. Liang, Z. Li, S. Wu and Z. Cui, *J. Colloid. Interf. Sci.*, 2022, **625**, 606–613.

S9 R. Jana, A. Bhim, P. Bothra, S. K. Pati and S. C. Peter, *ChemSusChem*, 2016, **9**, 2922-2927.

S10 X. Ren, Y. Zhai, Q. Zhou, J. Yan and S. Liu, *J. Energy Chem.*, 2020, **50**, 125–134.

S11 C. Dong, T. Kou, H. Gao, Z. Peng and Z. Zhang, *Adv. Energy Mater.*, 2018, **8**, 1701347.

S12 L. Han, C. Dong, C. Zhang, Y. Gao, J. Zhang, H. Gao, Y. Wang and Z. Zhang, *Nanoscale*, 2017, **9**, 16467–16475

S13 Y. Pi, J. Guo, Q. Shao and X. Huang, *Chem. Mater.*, 2018, **30**, 8571−8578.

S14 S.-N. Wu, Y.-F. Qi, Q. Wang, X.-G. Wang, X.-J. Zhao and E.-C. Yang, *ChemElectroChem*, 2020, **7**, 684–690.

S15 L. Xiao, Y. Liang, Z. Li, S. Wu, S. Luo, H. Sun, S. Zhu and Z. Cui, *J. Colloid. Interf. Sci.*, 2022, **608**, 1973–1982.

S16 G. Xi, L. Zuo, X. Li, Y. Jin, R. Li and T. Zhang, *J. Mater. Sci. Technol.*, 2021, **70**, 197–204.

S17 F. J. Lai, W. N. Su, L. S. Sarma, D. G. Liu, C. A. Hsieh, J. F. Lee and B. J. Hwang, *Chem. Eur. J.*, 2010, **16**, 4602–4611.

S18 Y. Chen, Y. Chen, Y. Liao and S. Chen, *Chem. Res. Chin. Univ.*, 2022, **38**, 991–998.

S19 L. Gan, M. Heggen, S. Rudi and P. Strasser, *Nano Lett.*, 2012, **12**, 5423–5430.

S20 D. Wang, Y. Yu, J. Zhu, S. Liu, D.A. Muller and H. D. Abruña, *Nano Lett.*, 2015, **15**, 1343–1348.

S21 L. Gan, M. Heggen, S. Rudi and P. Strasser, *Nano Lett.*, 2012, **12**, 5423–5430.

S22 R. Srivastava, P. Mani, N. Hahn and P. Strasser, *Angew. Chem. Int. Ed.*, 2007, **46**, 8988–8991.

S23 J. Wang, F. Chen, Y. Jin, Y. Lei and R. L. Johnston, *Adv. Funct. Mater.*, 2017, **27**, 1700260.

S24 S. Koh and P. Strasser, *J. Am. Chem. Soc.*, 2007, **129**, 12624–12625.