

Supporting Information

Effect of NiO Addition on the Sintering and Electrochemical Properties of $\text{BaCe}_{0.55}\text{Zr}_{0.35}\text{Y}_{0.1}\text{O}_{3-\delta}$ Proton-Conducting Ceramic Electrolyte

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Table S1. Comparison of conductivity of BCZY, BCZY-0.5, BCZY-1.0 in air and H₂ at 600-700°C.

σ (mS cm ⁻¹)	BCZY-0		BCZY-0.5		BCZY-1.0	
	Air	H ₂	Air	H ₂	Air	H ₂
600°C	1.5	2.3	6.7	8.4	6.6	7.7
650°C	2.2	3.0	9.5	10.0	8.8	9.3
700°C	3.0	3.7	12.2	11.3	11.3	10.8

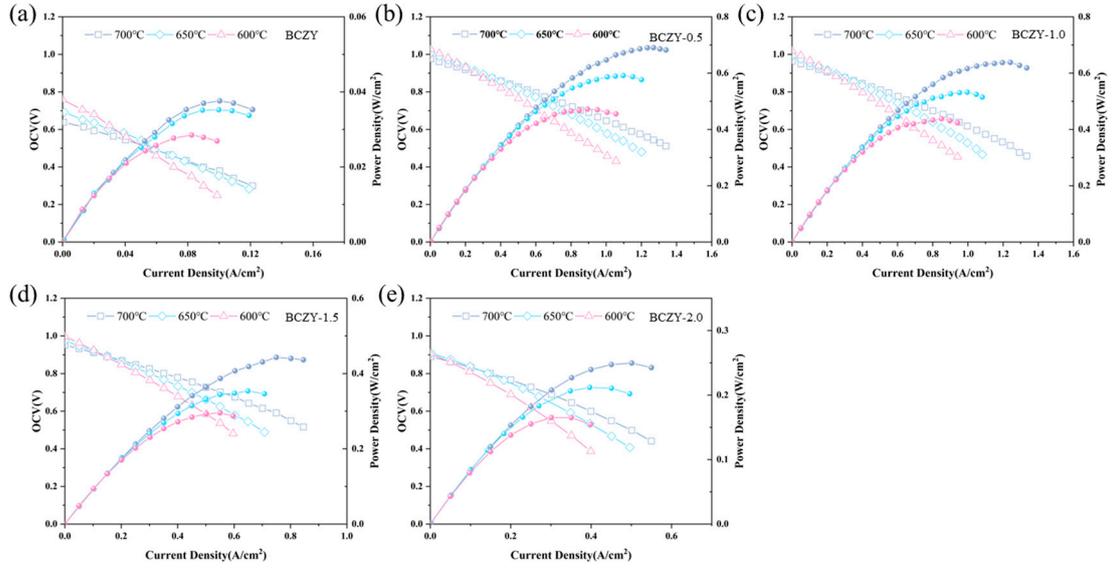


Figure S1. The single cell I-V and I-P diagrams of NiO-BCZY/BCZY-x ($x=0, 0.5, 1.0, 1.5, 2.0$)/BCZY-LSCF with a cell structure tested in 700°C, 650°C and 600°C.

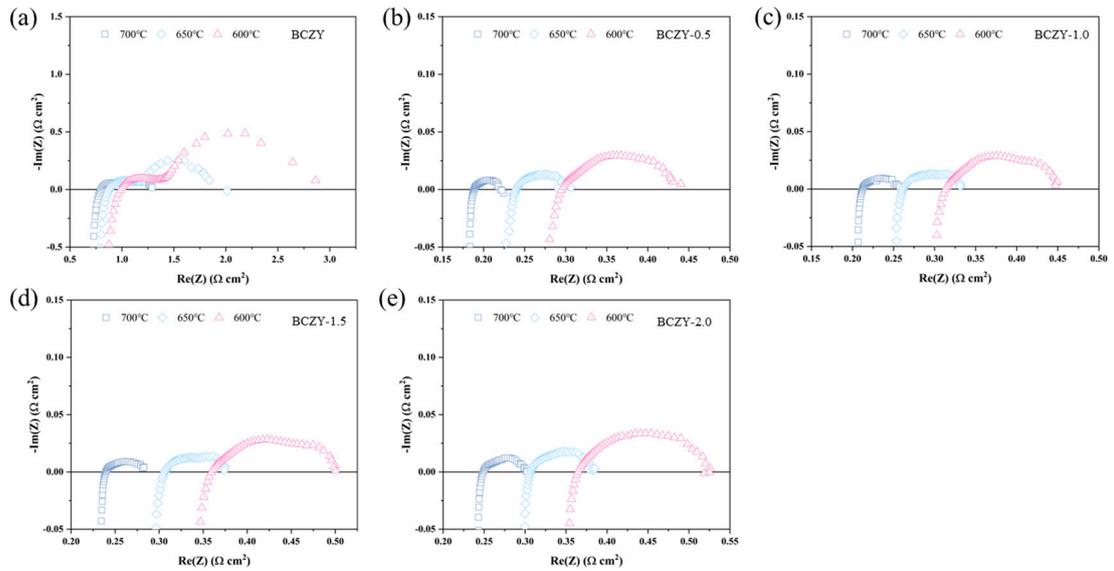


Figure S2. EIS diagrams of NiO-BCZY/BCZY-x ($x=0, 0.5, 1.0, 1.5, 2.0$)/BCZY-LSCF with a cell structure tested in 700°C, 650°C and 600°C.

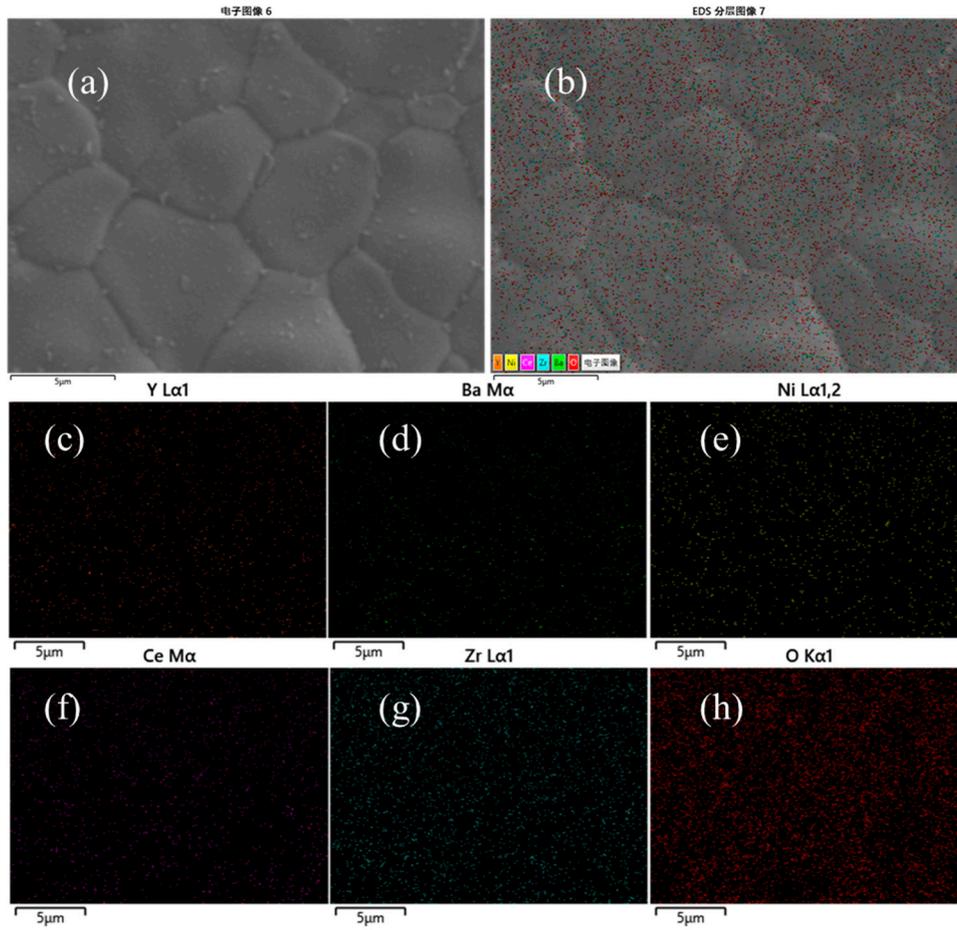


Figure S3. SEM-EDS mapping results for the surface of the BCZY-0.5 electrolyte membrane after testing (a)-(h).