

## Supplementary information

### Large-scale tubular protonic ceramic electrolysis cells made by injection molding

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Figure S1: Sintered NiO-BCZYYb7111//BCZYYb7111 with the hanging alumina rods.



Figure S2: Production of 10 high-quality injection molded NiO-BCZYYb7111 tubes, before bisque-firing.

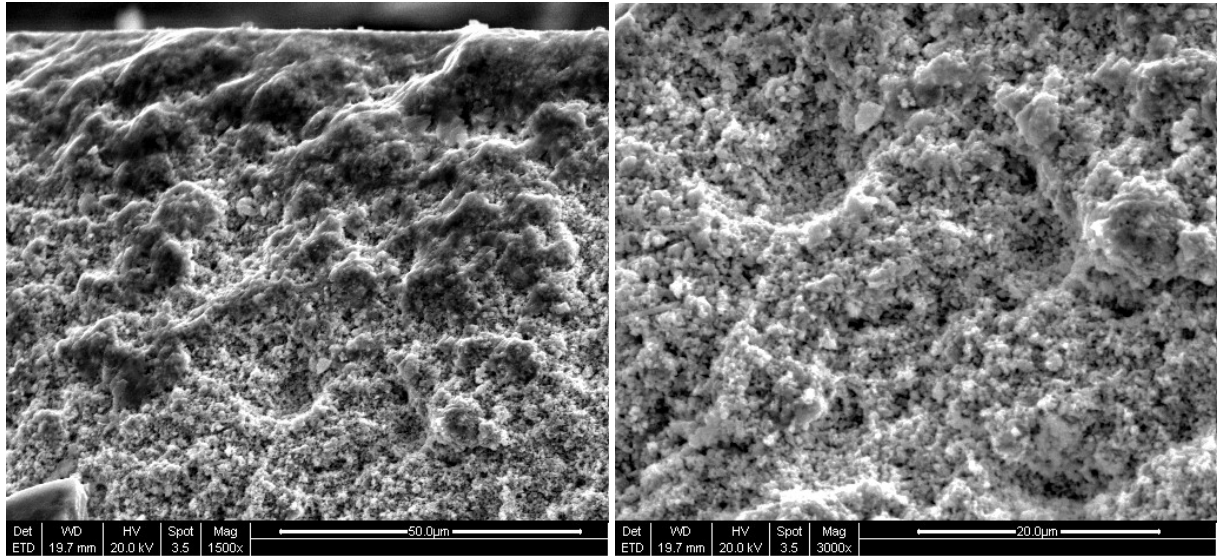


Figure S3: SEM of a fractured NiO-BCZYYb7111 bisque-fired tube.

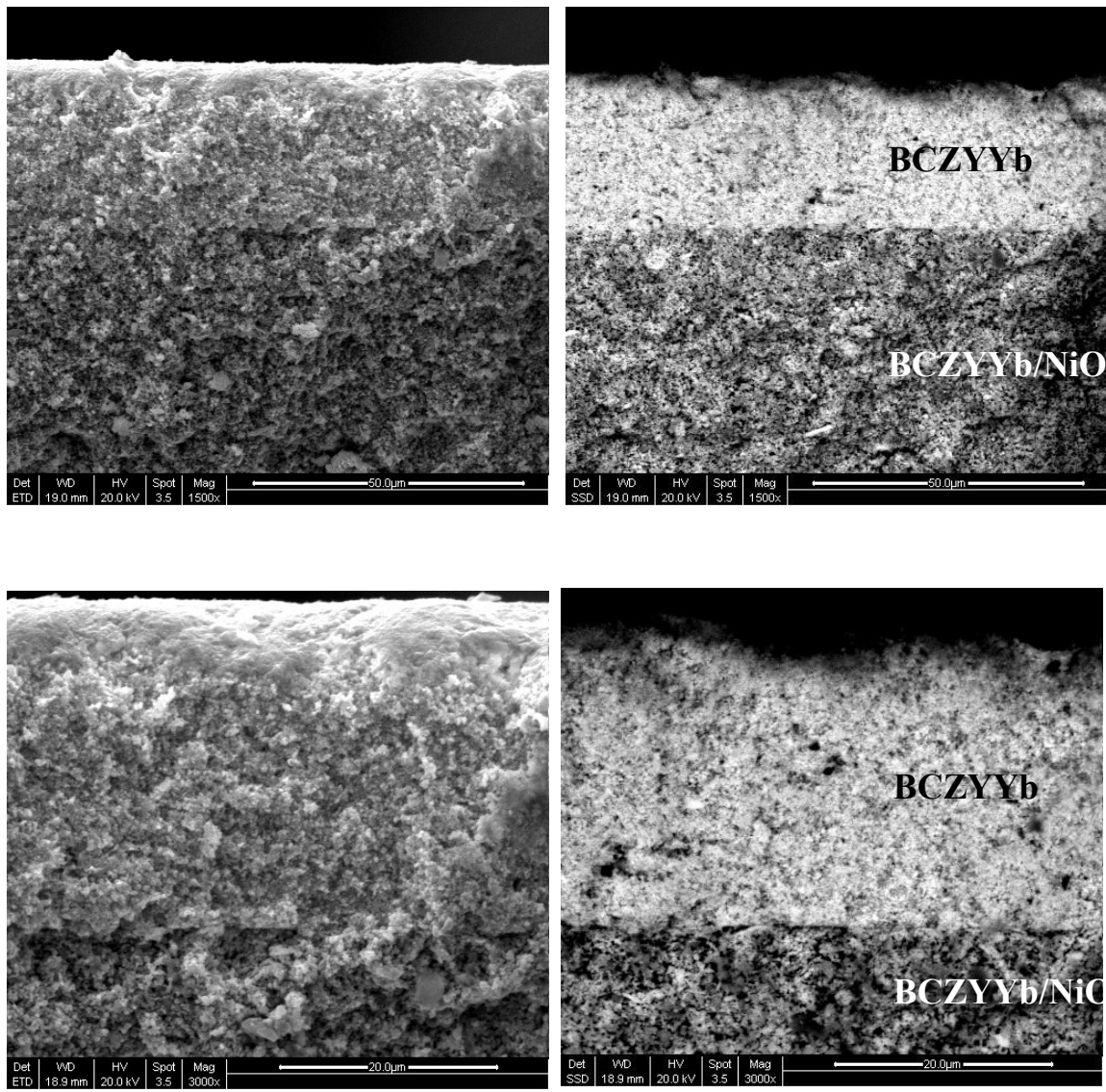


Figure S4: SEM of fractured dip-coated tube (NiO-BCZYYb7111//BCZYYb7111) before sintering. Left: secondary electron micrographs, right: backscattered electron micrographs.

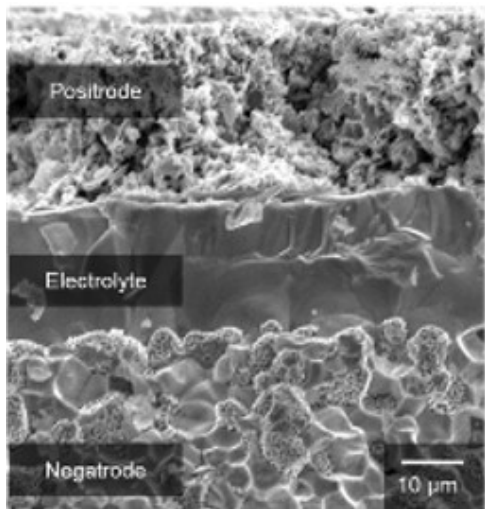
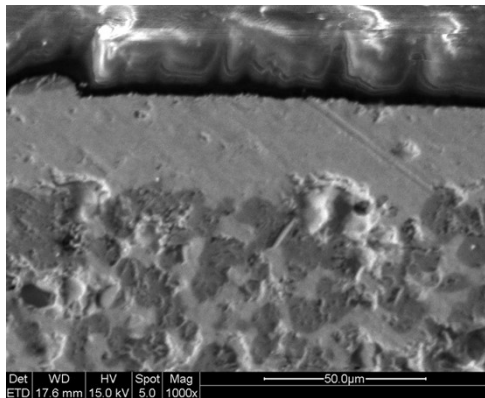
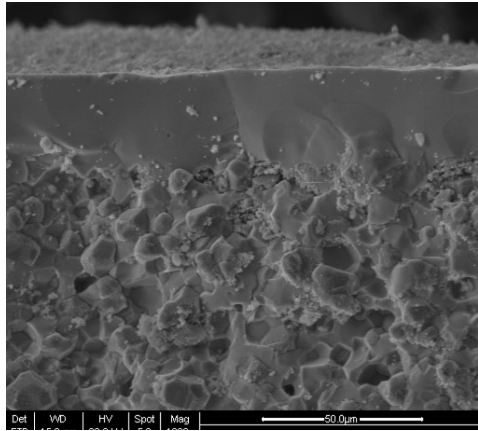


Figure S5. Homogeneous thickness over several tubes that were dip-coated and co-sintered. From top to bottom the electrolyte thickness averages 30 microns, 31 microns, and 24 microns.

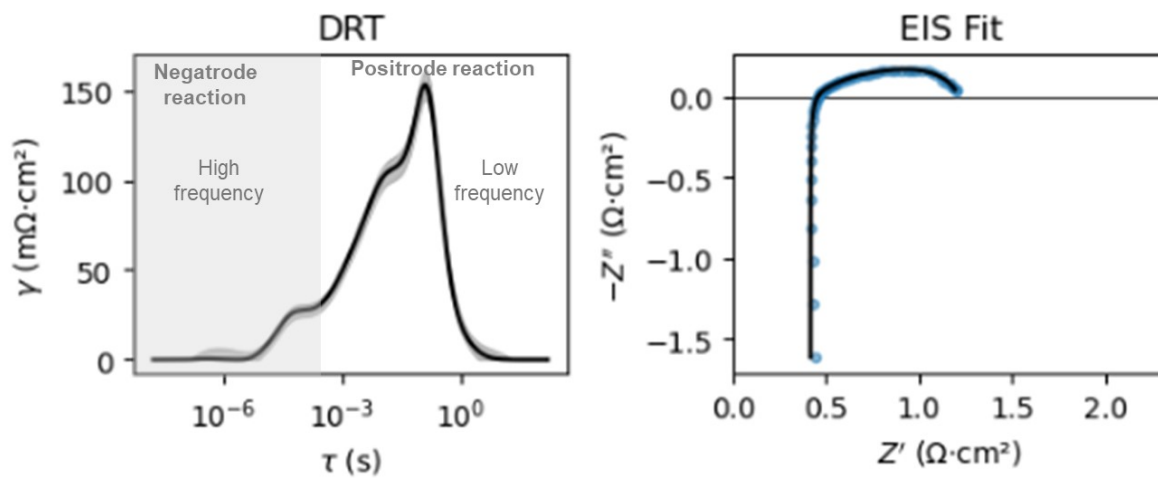


Figure S6. DRT and EIS plot of the 20 cm<sup>2</sup> injected tubular cell at 600°C.

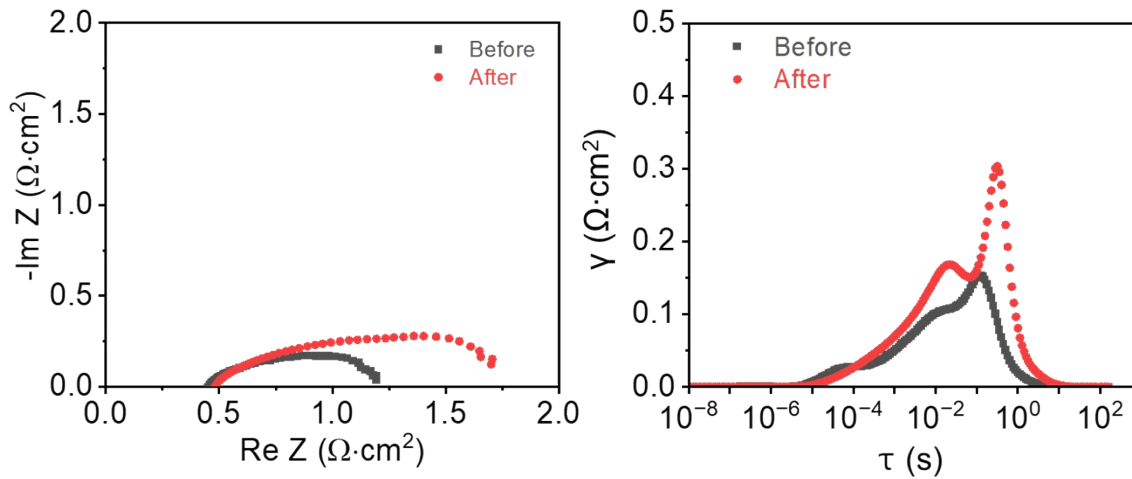


Figure S7. EIS and DRT plot before and after durability test.