

## Supporting Information

### **Cellulose nanocrystal-based composite electrolyte with superior dimensional stability for alkaline fuel cell membranes**

Yuan Lu, Aaron A. Armentrout, Juchuan Li, Halil L. Tekinalp, Jagjit Nanda, Soydan Ozcan\*

Materials Science and Technology Division, Oak Ridge National Laboratory, 1 Bethel Valley Road, Oak Ridge, Knoxville, TN. 37831

\*Address correspondence to Dr. Soydan Ozcan

*Email: [ozcans@ornl.gov](mailto:ozcans@ornl.gov).*

**Thermal stability of the CNC composite films.** The TGA analysis was carried out with a heating rate of 10 °C/min up to 600 °C. As shown in the Figure S1, these films all exhibited great stability at the operating temperatures (e.g., < 100 °C). Films with binder B exhibited better thermal stability due to the greater percentage of silica gels. It also contributes to the improved stability for films with higher binder B percentage.

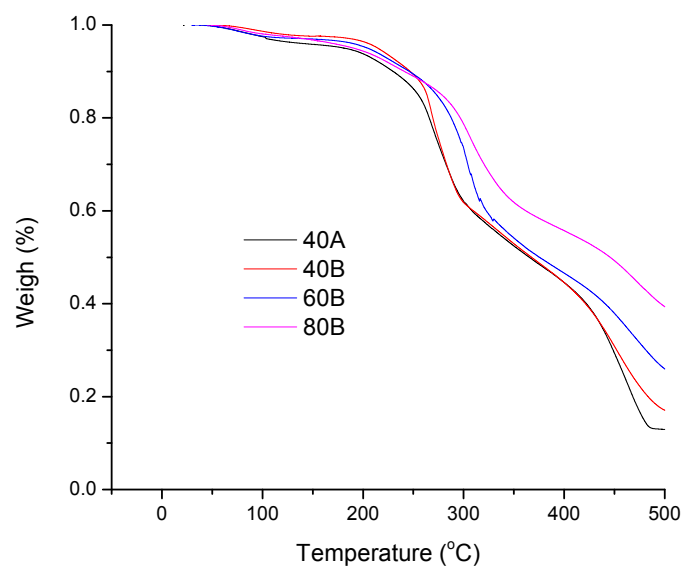


Figure S1: Thermal gravimetric analysis of the CNC-based composite films