

## **Two-step sintering of fine barium cerate-zirconate ceramics electrolyte**

### **Abstract**

Two-step sintering (TSS) was applied on the  $\text{BaCe}_{0.54}\text{Zr}_{0.36}\text{Y}_{0.1}\text{O}_{2.95}$  powder and the effect of the second step temperature (T2) during sintering process on the grain growth, density and hardness is reported. Normal sintering with holding temperature of 1500 °C and four different TSS profiles with four various T2 (1150 °C, 1250 °C, 1350 °C, 1450 °C) were conducted. From the results, sample sintered via TSS at T2 of 1450 °C shows the highest density compared to other samples including sample sintered via normal sintering at temperature 1500 °C. The grain size of the sample sintered at T2 of 1450 °C also smaller than the sample sintered via normal sintering. Result from hardness test proves the hardness also increase when the density increase.

**Keywords;** Barium Cerate-Zirconate, Density, Grain Growth, Two-Step Sintering