Solid state sintering was studied on ceramic samples with the initial composition: kaolin (35.5 wt. %), Al₂O₃ (35 wt. %) and feldspar (29.5 wt. %). Since the solid-state sintering and dehydroxylation run simultaneously, the samples were preheated at 490 °C for 24 hours to reach a complete transformation of kaolinite into metakaolinite. After that the samples were studied by thermodilatometry in an isothermal regime at temperatures 500, 600, 700, 800, 900, 1000 and 1050 °C when no liquid phase is created. The relative expansion was measured during 8 hours. For temperatures 500, 600, 700, 800 °C only a small contraction (0.15 – 0.20 %) was observed and after 4 hours the samples became stabilized. For temperatures higher than 1000 °C contraction continued the entire time and reached 2.5 %.