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**Effect of temperature and holding time on the densification of alumina obtained by two-step sintering**

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**Abstract**

The two-step sintering technique is a process of controlling the sintering curve, which provides materials with higher density and smaller grain size when compared to conventional sintering. This technique was evaluated by optical dilatometry with three commercial alumina powders of different purity (92, 96 and 99 wt% of  $\text{Al}_2\text{O}_3$ ) and particle size (between 0.73 and 2.16  $\mu\text{m}$ ). Different sintering conditions in the first (temperature,  $T_1$ ) and second (temperature,  $T_2$ , and holding time,  $t_2$ ) steps were studied in order to evaluate the effect of these variables on densification and grain growth. Considering  $T_1$  as the temperature at which a relative density ( $D_{\text{rel}}$ ) of 83% was achieved, and for the range

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