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INFLUENCE OF CALCINATION TEMPERATURE ON THE ZIRCONIA MICROSTRUCTURE SYNTHESIZED BY COMPLEX POLYMERIZATION METHOD (CPM): A COMPARATIVE STUDY

Santos, R.L.P.(1); Mota, F.V.(1); Nascimento, R.M.(1); Henriques, B.P.(2); Silva, F.S.(3); Assis, r.(1); Universidade Federal do Rio Grande do Norte(1); Universidade Federal do Rio Grande do Norte(2); Universidade Federal do Rio Grande do Norte(3); Universidade Federal de Santa Catarina(4); Universidade do Minho(5); UFRN(6);

The aim of this study was to accomplish a previous characterization of the zirconia synthesized by Complex Polymerization Method (CPM) using yttria as stabilizing agent and different calcination temperatures. The powders were crystallized at 800, 900 and 1000 °C for 2h. The structural evolution Y-TZP powders were characterized by X-Ray Diffraction (XRD) and Micro-Raman Spectroscopy. The thermal properties of the calcined pre-pyrolyzed (350 °C for 4 h), samples were investigated by simultaneous thermoanalysis (TGA/DTA). After heat treatment the phase Y-TZP was obtained of a single-phase, with absence of the deleterious phases. The results show that average crystallite size of the powder synthesized with 3% of Yttria dopant, increased from 11.5 to 27.9 nm when the calcination temperature increased from 800 to 1000°C. This behavior was observed for all specimens independent of the Yttria content. The micro-Raman indicate the presence of the tetragonal phase for all samples independ of the calcination temperature employed.