

**07-012 Microstructure and thermal conductivity of porous Al<sub>2</sub>O<sub>3</sub>-ZrO<sub>2</sub> ceramics**

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The improvement on the development of porous ceramic materials has led to new technologies in thermal insulation, for example, composite materials for better performance of pressure vessels in rocket engines. Within this context, the present work aims to synthesize porous ceramic fibers made of Al<sub>2</sub>O<sub>3</sub> and covered by ZrO<sub>2</sub> through the processes of co-precipitation and replica method in an organic fiber template. The green body was burnt-out and sintered at 1200-1600°C to obtain the continuously porous ceramic fibers. In the FEG-SEM analysis, an interconnected porous structure with small grains could be observed. The crystalline phases and crystallite size were determined by X-ray diffraction and compared to micro-Raman results regarding the crystalline structure. Porosity was calculated through a mercury porosimeter as 77.9% while the Laser Flash method gave a thermal conductivity value of 1,61 K W.m<sup>-1</sup>.K<sup>-1</sup> for the Al<sub>2</sub>O<sub>3</sub>-ZrO<sub>2</sub> fibers.