

(10-047) - Study densification and characterization electric of ceramics based in barium titanate doped lanthanum, laser sintered.

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The main focus of this work were the synthesis by solid state reaction, the laser sintering and the electrical characterization of La³⁺ doped BaTiO₃ ceramics (BT:La) in order to verify the laser processing on your semiconductivity properties and densification. In the laser sintering a CO₂ laser is used as the main heating source and the ceramics bodies are subject at high heating and cooling rate. Dilatometry, X-ray Diffraction, Scanning Electron Microscopy and Impedance Spectroscopy techniques were used to synthesis and characterization process. The laser sintered samples at 3.2 W/mm² for 20s presented high relative density (94%) and a homogeneous microstructure. It was found that the laser sintered ceramics presented a PTCR behavior with a resistivity jump of 2 orders of magnitude and a room temperature resistivity about 3 orders of magnitude lower than the conventional sintered ceramics.
