INFLUENCE OF GRAIN SIZE ON UNIAXIAL VISCOSITY DURING THE SINTERING PROCESS IN CERAMICS

Antonino Vega Siverio[1], Hector Camacho Montes[1], Boris Jesús Mederos Madrazo[1], Irma Espinoza[1]
[1]Universidad Autónoma de Ciudad Juárez, Física - Matemáticas, Mexico.

The present work aims to investigate the susceptibility of uniaxial viscosity to characterize the influence of grain size during the sintering process in ceramics, monitoring and estimating during its evolution and acting on the behavior of uniaxial viscosity. High precision load dilatometry measurements were developed during the sintering process applying different compression loads for a more effective control of the grain size by monitoring the uniaxial viscosity, fixed heating rates were programmed at different values; relating the structural parameters with the effects caused by the variation in the grain size in the uniaxial viscosity as a function of the density. Characterizations were carried out on the microstructure of the samples by means of scanning electron microscopy (SEM) and X-ray diffraction (XRD) and finally a correlation was established between the uniaxial viscosity and the grain sizes for a better control of the physical and mechanical properties. as a viable alternative that will offer added value in the conformation of functional ceramics that are currently obtained through traditional processes.

Keywords: uniaxial viscosity, grain size, sintered

Presenting author's email: avegasiverio@gmail.com