Contribution ID: **97** Type: **2. Invited speaker (by invitation only)**

Dissolution in Yttria-Ceria Composites

Dissolution between Y_2O_3 and CeO_2 was studied with the goal to understand microstructure and sintering in CeO_2-particle reinforced Y_2O_3 composites. In one type of experiment the microstructure of composites made by hot pressing and by spark plasma sintering were compared. Subsequent heat treatments in air were performed to study dissolution of CeO_2 into Y_2O_3. In a second type of experiment, diffusion bonded couples of Y_2O_3 and CeO_2 were prepared by heating at elevated temperature in air. The results of these experiments reveal that the evolution of the microstructure is more complicated than expected based on existing literature. At least one intermediate phase forms between Y_2O_3 and CeO_2 and may dictate the dissolution kinetics. Interdiffusion between Y_2O_3 and CeO_2 leads to significant microstructure changes, including porosity in Y_2O_3 and columnar grain growth in CeO_2. These microstructure observations are discussed in the context of dissolution mechanisms.

Professional Status of the Speaker

Senior Scientist

Interest in submitting a paper in a special issue of

Journal of the European Ceramic Society (Elsevier)

Invitation letter for visa

No

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