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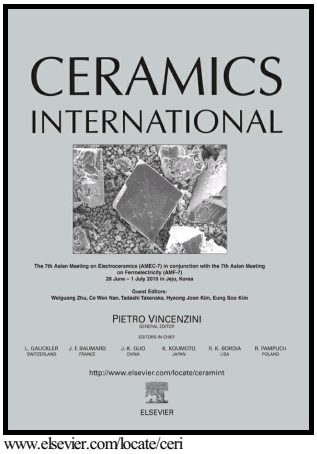

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Fabrication of highly porous mullite microspheres via oil-drop molding accompanied by freeze casting

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Abstract

Porous mullite microspheres with a highly open porosity and average diameter of more than 800 μm were fabricated via an oil-drop molding method accompanied by a freeze casting process. After sintering, a highly porous structure was formed due to interlocking whisker-shaped mullite grains and formation of interconnected skeletons during the freeze-casting process. Additionally, it was found that a high porosity and large pore size in the microspheres green bodies are favorable for the synthesis of mullite whiskers with high aspect ratio.

Keywords: Porous microspheres; Mullite; Porous structure; Freeze casting

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1.Introduction

Porous ceramic microspheres are widely used in a broad range of applications, such as catalyst supports, drug delivery, and sorbent materials, owing to their attractive

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