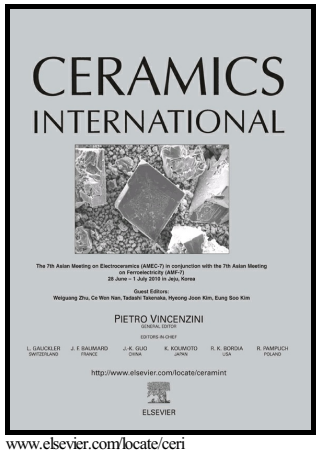

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Porous SiC ceramics with dendritic pore structures by freeze casting from chemical cross-linked polycarbosilane

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Abstract: In this study, a commercial polycarbosilane (PCS) and divinylbenzene (DVB) were used as the preceramic polymer precursor and crosslinking agent, respectively to form porous silicon carbide (SiC) ceramics by freeze casting DVB/camphene/PCS solutions. Porous silicon carbide (SiC) with a dendritic pore structure and connecting bridges was obtained after pyrolysis at 1200 °C. The effects of DVB and PCS content on the rheological properties of the solution and the morphological characteristics and the compressive strengths of SiC ceramics were investigated. The use of DVB and the resulting chemical cross-linking yielded