Title: Porous Silicon Nitride Foams

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ABSTRACT

Porous silicon nitride foams were prepared using olive oil and hexylamine, as foaming agent and particle stabilizer respectively, with porosities ranging from 70-80%. The hexylamine (0.7-2.3wt% with respect to solid loading) and olive oil addition compliments the foaming ability of silicon nitride. It was noticed that with the increase in hexlyamine content the pore sizes in silicon nitride becomes narrower and forms closed pores. The foams were sintered to convert the starting alpha silicon nitride to acicular beta silicon nitride. The beta grains of silicon nitride are found to have longer acicular grain sizes in the pores compared to its grain size in struts. Silicon nitride grain morphology was dependent on the types of sintering additives.

Oral Presentation.