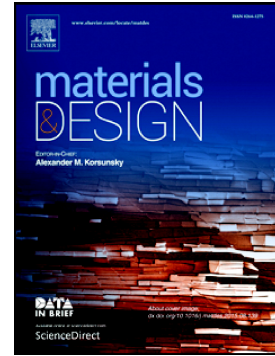


## Accepted Manuscript

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PII: S0264-1275(16)31525-8  
DOI: doi: [10.1016/j.matdes.2016.12.010](https://doi.org/10.1016/j.matdes.2016.12.010)  
Reference: JMADE 2555

To appear in: *Materials & Design*

Received date: 23 September 2016  
Revised date: 30 November 2016  
Accepted date: 4 December 2016

Please cite this article as: Prasanta Jana, Emanuele Zera, Gian Domenico Sorarù , Processing of preceramic polymer to low density silicon carbide foam. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. *Jmade*(2016), doi: [10.1016/j.matdes.2016.12.010](https://doi.org/10.1016/j.matdes.2016.12.010)

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**Processing of preceramic polymer to low density silicon carbide foam**Prasanta Jana<sup>\*</sup>, Emanuele Zera and Gian Domenico Sorarù

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**Abstract**

A method is described here for preparing lightweight and low cost polymer-derived silicon carbide foam by impregnation of preceramic polymer in polyurethane foam. A series of silicon carbide foams with various density (0.035–0.35 g/cc), porosity (87–98%) and thermal conductivity (0.05–0.12 W/m. K) were prepared using allylhydropolycarbosilane as a base materials. Surface analysis shows that the resultant foams have an open and interconnected porous structure. Phase analysis shows that it has cubic crystal structure. There was no evidence of cracks or damage even after treating the silicon carbide foam with concentrated hydrofluoric acid for 12 days. From the oxidation resistance experiment, it can be concluded that the silicon carbide foam is stable up to 1500°C in air and 2000°C in argon.

Keywords: Replica method, Polyurethane foam, Polymer-derived ceramics, Silicon carbide foam

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