

表面处理对碳化硅泡沫陶瓷挂浆性能的影响

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**摘要** 采用有机泡沫浸渍法制备碳化硅泡沫陶瓷时, 通过对聚氨酯泡沫进行不同改性剂的表面处理来改善其挂浆性能, 利用一种更加合理的表征方法, 即测量挂浆后泡沫陶瓷素坯孔筋尺寸和表征孔筋挂浆后形貌来衡量挂浆性能. 试验结果表明, 在所选用的四种改性剂中, 羧甲基纤维素(CMC)的改性作用最好, 其次是硅溶胶, 而聚乙烯醇(PVA)效果最差. CMC的改性效果主要来源于pH值>7条件下形成的疏水基团与有机泡沫结合而亲水基团与水基浆料结合的结构, 这种结构可以显著改善有机泡沫与水基浆料的润湿性.

**关键词** [表面处理](#) [挂浆](#) [碳化硅泡沫陶瓷](#) [孔筋尺寸](#)

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## Effect of Surface Treating of PU Foam on Coating Properties for Silicon Carbide Ceramic Foam

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**Abstract** Polyurethane sponges were treated by different surface active agents in order to improve coating properties when ceramic foams were prepared by polymeric sponge process. A more reasonable method, in which coating properties were evaluated through measuring the size of struts of green bodies and uniformity of slurry distribution in the struts of green bodies, was employed. Experimental results showed that among the four surface active agents, the effect of carboxymethyl cellulose(CMC) on promoting coating properties was the best, and the polyvinylalcohol (PVA)'s effect was the worst. The mechanism of CMC to improve coating properties lies in the structure formed in the condition of pH>7, in which its hydrophobic groups combine with PU sponge and its hydrophilic groups combine with aqueous slurry. This structure promotes greatly wetting ability between PU sponge and slurry.

**Key words** [surface treating](#) [coating properties](#) [silicon carbide ceramic foam](#) [size of struts](#)

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