


Joining of Silicon Carbide Through the Diffusion Bonding Approach

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Bibliogov, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.In order for ceramics to be fully utilized as components for high-temperature and structural applications, joining and integration methods are needed. Such methods will allow for the fabrication the complex shapes and also allow for insertion of the ceramic component into a system that may have different adjacent materials. Monolithic silicon carbide (SiC) is a ceramic material of focus due to its high temperature strength and stability. Titanium foils were used as an interlayer to form diffusion bonds between chemical vapor deposited (CVD) SiC ceramics with the aid of hot pressing. The influence of such variables as interlayer thickness and processing time were investigated to see which conditions contributed to bonds that were well adhered and crack free. Optical microscopy, scanning electron microscopy, and electron microprobe analysis were used to characterize the bonds and to identify the reaction formed phases.



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