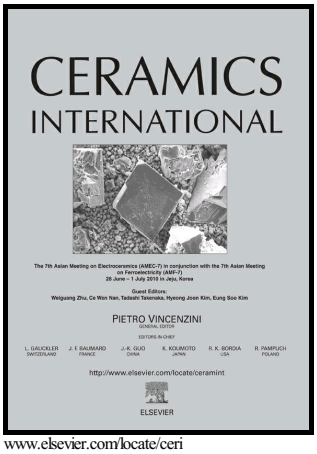

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Abstract

C_f/Ti_3SiC_2-SiC composites with different content of short carbon fibers were fabricated by the combination of compression molding and pressureless sintering. Microstructure and mechanical behavior of the composites were studied to evaluate the comprehensive performance of the material. In comparison, composites without carbon fibers were also fabricated in the same way. The results indicate that Ti_3SiC_2 phases were synthesized in each cases and exhibit typical laminated structure with smooth surface. With the increase of carbon fiber content, composites turn from brittle to toughness, and show obvious elastic and no-linear regions on the force-displacement curve. Moreover, composite with 30 % (volume fraction) carbon fiber shows the highest flexural strength (284.03 MPa), open porosity (15.78 %), and lowest density (2.37 g cm^{-3}). There were chemical reactions occurred between carbon fibers and matrix which formed strong covalent bonds and interfaces. The micrographs also