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(54) Title: THERMAL SHOCK RESISTANT CERAMIC COMPOSITES

(57) Abstract: A ceramic composite is able to withstand temperatures in excess of 2200 F on a repeated basis without cracking due to thermal shock. The composite has a web of reinforcement fibers; and a matrix that substantially the web after the firing step. The matrix is formed around the web by impregnating the web with a sol containing alumina and, in some cases, rare earth oxides, and firing the composite after the impregnation. The web may be a three-dimensional orthogonal weave of the reinforcement fibers, where the fibers are a transitional phase alumina. The composite is essentially free of Group I and Group II metals and transition metal oxides. The composite may be used as a refractory brick or lining and may also be used as an insulating material due to its chemically non-reactive nature.



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