

[54] PRECERAMIC COMPOSITIONS AND CERAMIC PRODUCTS

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[58] Field of Search 501/88, 90, 92; 528/28

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[57] ABSTRACT

Low density SiC ceramics having improved bending and specific strengths are prepared by (A) intimately mixing about 50–85% by weight of SiC powder with about 15–50% by weight of a preceramic polysilazane binder, (B) pulverizing the mixture to form particles having a particle size smaller than 105 micrometers, (C) separating from those particles any particles having a particle size larger than about 105 micrometers, (D) molding the resultant composition having a particle size not larger than about 105 micrometers, and (E) pyrolyzing the molded composition in an inert atmosphere to a temperature of about 1200°–1450° C.

In a preferred embodiment of the invention, the preceramic binder is at least one polysilazane prepared by reacting an organodihalosilane with ammonia, treating the ammonolysis product with a basic catalyst which is capable of deprotonating an NH group that is adjacent to an SiH group, and quenching the resultant product with an electrophilic quenching reagent.

9 Claims, No Drawings