

LOW TEMPERATURE SINTERING ROUTE FOR ALUMINUM NITRIDE CERAMICS

ABSTRACT

An aluminum nitride ceramic having desired properties suitable for electronic packaging applications can be prepared from a novel aluminum nitride powder/sintering aid mixture. The sintering aid comprises a glassy component formed from alumina, calcia and boria, and a non-vitreous component comprising an element or compound of a metal of Group IIa, IIIa, or the lanthanides, preferably crystalline oxides, reactible with the crystallized glass component and the alumina from the AlN grains. Alternatively, the sintering aid comprises a multi-component glass composition capable of forming the above components upon melting and thereafter crystallizing upon reaction.

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