

عنوان مقاله:

COMPARISON OF USING NANOSIZE AND MICRONIZE TiB POWDER ON MECHANICAL AND MICROSTRUCTURAL PROPERTIES OF BC-TiB COMPOSITES

محل انتشار:

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خلاصه مقاله:

Due to their outstanding properties such as high hardness, low density, high refractoriness, and high neutron absorption cross-section, B4C ceramics are regarded as strategic materials in military industrial applications as armors and neutron absorbent in nuclear industries. The effect of using nanosize and micronize TiB₂ powder as secondary phase on sintering behavior and mechanical properties in BC-TiB₂ composites was investigated. Different amounts of micronize and nanosize TiB₂ powder, mainly 0 to 30 wt% were added to the base material. Pressureless sintering was conducted at 1950, 2050 and 2150C, therefore mechanical and microstructural properties were compared. It is obvious that higher relative density, flexural strength, fracture toughness and microstructural uniformity are attributed to using nanosize TiB₂ powder as secondary phase in BCnanoTiB₂nanocomposite.

کلمات کلیدی:

BC; TiB₂; Sintering temperature; Nanosize; Micronize

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