

Volume 15, Number 3, 2006

Mechanochemically and Thermally Activated Combustion of the B-TiN System

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ABSTRACT

Interaction in the B-TiN system under the thermally and mechanochemically activated combustion mode was investigated. Combustion laws for **$n(\text{Ti-2B})-(3\text{B-TiN})$** and **$n(\text{B-0.5N}_2)-(3\text{B-TiN})$** systems are revealed. It is shown that phase composition and microstructure of final products are strongly dependent on the type of activation, initial mixture composition, density of the initial samples and reactive (or inert) gas pressure. Optimum conditions for synthesizing TiB₂/BN composite powders with various content of BN were revealed.

Key words: composite powders, thermal activation, mechanochemical activation, infiltration combustion