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**Acid Resistance and Electron Microscopy of Hot Shock
Consolidated TiN-TiB₂ Composites**

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ABSTRACT

Dynamic hot shock compaction used combustion synthesis and shock wave, accompanied by detonation of explosives, has been attempted to prepare various composites from boron nitride, boron and metal titanium powders. X-ray diffraction experiments of the hot shock-compacted composites indicated that they formed TiN and TiB₂ phase only without non-reacted materials. Density of the composite was affected by TiN content and residual pores even after the shock compaction. A corrosion resistance improved as increasing TiN content and by densification with the shock compaction. TEM observations revealed that TiN and TiB₂ crystal grains bonded closely each other and that the grain involved also dislocations in them though we expected that such residual strain by the shock wave processing would be released by elevated temperature due to the combustion synthesis.

Key words: *TiN-TiB₂, ceramic composites, high energy-rate processing, electron microscopy, hot shock compaction.*