

## 研究论文

### 原位自生Ti--B--Si--C系复合材料的制备和性能

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**摘要:** 以Ti粉、B<sub>4</sub>C粉和SiC粉为原料,用真空热压烧结工艺制备了原位自生颗粒增强的Ti--B--Si--C系钛基复合材料,研究了复合材料的显微组织和力学性能。结果表明,使用的初始粉末不同,原位自生颗粒的组成不同,复合材料的性能也有明显的差别。

**关键词:** 复合材料 钛基复合材料 原位自生 力学性能

### Synthesis and Performance of In - situ Ti - B - C - Si Composites

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**Abstract:** A in - situ Ti - B - C - Si composite with fine TiB<sub>2</sub>, TiC and Ti - Si phase dispersed in composite was synthesized using titanium, B<sub>4</sub>C and SiC powders using hot - pressing sintering. The microstructure and mechanical properties of the composite were observed by using X - ray diffraction (XRD) analysis, scanning electron microscope and mechanical property testing. The results show that starting powder reactants have much effect on in - situ phase content and mechanical properties in titanium matrix composites.

**Keywords:** composites titanium matrix composites in - situ mechanical properties

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