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粉末布法制备SiC/Ti基复合材料

符跃春, 石南林, 张德志, 杨锐

(中国科学院金属研究所, 沈阳 110016)

摘要: 用粉末布法制备了低成本SiC/Ti基复合材料。结果表明, 采用合适的轧制参数即可容易地获得厚度合适、均匀的粉末布; 热失重分析和热解残余物分析指出用来制备粉末布的有机粘结剂的去除过程分成两个阶段, 合理除气后, 基本没有残余物。使用真空热压工艺制备的SiC/Ti基复合材料, 纤维分布基本均匀, 纤维与基体的界面结合良好。

关键词: 钛基复合材料; 粉末布; SiC纤维; 真空热压

Preparation of SiC/Ti composites by powder cloth technique

FU Yue-chun, SHI Nan-lin, ZHANG De-zhi, YANG Rui

(Institute of Metal Research, Chinese Academy of Sciences, Shenyang 110016, China)

Abstract: The low cost SiC/Ti composites were prepared by a powder cloth technique. It is shown that uniform powder cloth with proper thickness can be produced by using appropriate rolling parameters. Thermogravimetic and pyrolysis residuum analysis indicate that the burnout process of fugitive binder used to produce the cloth is found to take place in two stages, no residuum is left when degassed properly. Composite materials processed by the vacuum hot pressing exhibit uniform fibre distribution and high interface bonding strength.

Key words: titanium matrix composite; powder cloth; SiC fibre; vacuum hot pressing

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地址: 湖南省长沙市岳麓山中南大学内 邮编: 410083

电话: 0731-8876765, 8877197, 8830410 传真: 0731-8877197

电子邮箱: f-ysxb@mail.csu.edu.cn