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用粉浆法制造SiC/Al复合材料

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FATIGUE OF SiC/Al COMPOSITE USING SLURRY METHOD

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摘要

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摘要

用Nicalon SiC纤维进行SiC/Al复合材料研究的结果表明,Al对该纤维的润湿性很差。其次,该纤维会与Al发生化学反应损伤纤维从而使其强度下降。因此,寻找一种低温固态复合工艺,如粉浆法,是必要的。粉浆法可避开液态Al不润湿SiC纤维的不利因素,又可降低化学反应速度,从而减少对纤维的化学损伤;此法可在常温下预成形因而可将玻璃的缠绕成型工艺移植到金属基复合材料。

关键词: 复合材料 粉浆法 热压

Abstract:

The slurry was prepared with 13* μ m and sodium alginate solution, then a yarn of SiC fiber was impregnated into the slurry. The precursory tape of SiC/Al was then obtained and hot-pressed. The longitudinal strength of SiC/Al composite with a fiber fraction of 18% was 376MPa. If the temperature and/or pressure were too high, the strength of fiber and composite will be degraded because of the damage of fibres.

Keywords: composite slurry method hot-pressing

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