

材料科学与工程

石墨对比对钨极氩弧熔敷层TiC增强相含量及分布形态的影响

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摘要: 利用钨极氩弧熔敷预涂在碳钢表面的钛铁和石墨粉末能够在碳钢表面获得性能优异的TiC增强涂层.预涂粉末Ti、C元素配比及含量对增强相的数量、形态和分布方式有重要影响:一方面,随着预涂粉末中含碳量的增加,熔敷层中Fe₂Ti有害相降低,但出现了极少量的石墨相;另一方面,熔敷层中原位合成TiC增强相的含量增加,颗粒尺寸也随之增加,TiC颗粒的树枝状分布形态也由细枝状向粗枝状转化.

关键词: 钨极氩弧熔覆 熔敷层 TiC 分布形态

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Abstract: The in situ TiC reinforced composites coating was obtained by prepared ilmenite and graphite powder on carbon steel through metallurgical interaction in tungsten arc welding. The proportion of Ti and C has an important influence on the volume and contribution of in situ TiC. The results showed that with increasing carbon contents, the Fe₂Ti phase was reduced, while a very small amount of graphite phases appeared. The particle size increased with an increasing in situ TiC content, and the dendrite distribution patterns of in situ TiC changed from kin to rough branched.

Keywords: tungsten arc welding composite coating TiC contribution pattern

收稿日期 2008-12-09 修回日期 1900-01-01 网络版发布日期 2009-04-16

DOI:

基金项目:

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