

论文

加弧辉光离子Ni-Cr共渗层的显微组织

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摘要: 本文利用扫描电镜、透射电镜及X射线衍射仪,研究了加弧辉光离子渗金属技术在碳钢(10, 45, T8)表面形成的Ni-Cr共渗层的合金元素(Cr, Ni, C)分布及其显微组织,结果表明,在本文的实验条件下,渗层表面合金元素浓度(质量分数,%)为Ni50-60, Cr10-15, 渗层内合金元素含量由表面向内逐渐降低;由于试样碳含量的不同,形成的Ni-Cr渗层内碳元素的分布具有不同的特点;Ni-Cr共渗层均以 γ -(Fe, Ni)相为基,在45, T8钢试样中,同时存在碳化物Cr₂₃C₆和Cr₇C₃。

关键词: 辉光放电 弧光放电 Ni-Cr共渗 显微组织

MICROSTRUCTURES OF NICKEL-CHROMIZING LAYER ON STEELS BY GLOW-DISCHARGE ION ALLOYING

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Abstract: Nickel-Chromizing was conducted for carbon steel samples (mass fraction: 0.1%, 0.45%, 0.8%) using the technique of glow-discharge ion surface alloying with arc sources. By using X-ray diffraction, SEM and TEM, the phase structure and the distribution of alloying elements (Cr, Ni, C) in the alloying layer were studied. The results indicated that the surface concentration of nickel and chromium is 50%-60% and 10%-15% respectively; the concentration of alloying elements in alloying layer decreased gradually from surface to inner; the distribution of carbon in alloying layer of samples with different carbon-contents is different; the alloying layer is γ -(Fe, Ni) for steel 10, and there were Cr₂₃C₆ and Cr₇C₃ in γ matrix alloying layer of steel 45, T8 sample.

Keywords: glow-discharge arc-discharge nickel-chromizing microstructure

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