

论文

金属陶瓷涂层耐蚀性能及影响因素的研究

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摘要:

研究了溶胶制备中所用催化剂种类、基体金属前处理及涂层厚度对用溶胶-凝胶法制得的陶瓷涂层耐蚀性能的影响,探讨获得最佳耐蚀性能的陶瓷涂层厚度所需的溶胶粘度及提拉速度范围。对不锈钢基体上SiO<sub>2</sub>、ZrO<sub>2</sub>、TiO<sub>2</sub>、SiO<sub>2</sub>-TiO<sub>2</sub>陶瓷涂层,采用多种电化学及化学评价方法,在不同腐蚀介质中就不同组合试样的耐酸蚀、抗眯蚀和抗氧化性能等作了比较。结果表明在不锈钢上采用溶胶-凝胶浸渍提拉法制得连续而致密的陶瓷涂可有效保护基体金属。

关键词: 陶瓷涂层 溶胶-凝胶薄膜 耐蚀性能

Stuey on Corrosion Resistance and Affecting Factors of Metal Ceramic Coating

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Abstract:

The effect sol preparation with different catalysts,substrate prtreatment and coatings thickness on corrosion tesistance of sol-gel ceramic coatings was studied.The range of sol viscosity and the withdrawal speed for preparing the necessary ceramic coating thickness which could bring optimum corrosion resistance was also explored.By comparing the acid resistance,pitting resistance and oxidation resistance in different corrosive media with various standard electrochemical and chemical corosion evaluation methods for different assembly samples, including SiO<sub>2</sub>、ZrO<sub>2</sub>、TiO<sub>2</sub>、AlO<sub>3</sub>、SiO<sub>2</sub>-TiO<sub>2</sub> ceramic coatings on stainless steel substrate, it could be concluded that the contineous and dense ceramic coating on stainless steel prepared with sol-gel dipping withdrawal method could provide effective protection.

Keywords: ceramic coating sol-gel film corosion resistance

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