

عنوان مقاله:

ELECTROPHORETIC DEPOSITION OF TiO₂-MULTI-WALLED CARBON NANOTUBE COMPOSITE COATINGS:
MORPHOLOGICAL STUDY

محل انتشار:

سومین کنفرانس بین المللی مواد فوق ریزدانه و نانوساختار (سال: 1390)

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خلاصه مقاله:

A homogenous TiO₂/multi-walled carbon nanotubes(MWCNTs) composite film were prepared by electrophoretic co-deposition from organic suspension on a stainless steel substrate. In this study, MWCNTs was incorporated to the coating because of their long structure and their capability to be functionalized by different inorganic groups on the surface. FTIR spectroscopy showed the existence of carboxylic groups on the modified carbon nanotubes surface. The effect of applied electrical fields, deposition time and concentration of nanoparticulates on coatings morphology were investigated by scanning electron microscopy. It was found that combination of MWCNTs within TiO₂ matrix eliminating micro cracks presented on TiO₂ coating. Also, by increasing the deposition voltages, micro cracks were increased. SEM observation of the coatings revealed that TiO₂/multiwalled carbon nanotubes coatings produced from optimized electric field was uniform and had good adhesive to the substrate.

کلمات کلیدی:

Carbon nanotubes; TiO₂; nanoparticles; Electrophoretic deposition; Nanocomposites; Coatings

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