

عنوان مقاله:

Epoxy-silicon nitride nanocomposite coating: Fabrication, corrosion protection performance and wear properties

محل انتشار:

ششمین کنگره بین المللی رنگ و پوشش (سال: 1394)

تعداد صفحات اصل مقاله: 2

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خلاصه مقاله:

Recently, there is a great interest for use of nanoparticles in organic coatings matrix to improve properties of these coatings. In this paper, epoxy powder as the matrix was combined with 4wt% of Si₃N₄ nanoparticle and nanocomposite coatings were applied on the surface of plain carbon steel components by electrostatic device. Coatings were cured by oven and microwave for the appropriate time. Coating structure and morphology of nanoparticles were investigated by SEM and TEM. Corrosion properties of coating were assessed by polarization and immersion tests in 3.5% NaCl solution. The results show that adding nanoparticles markedly increases corrosion resistance of epoxy coatings. Higher corrosion resistance of nanocomposite coatings can be attributed to the barrier properties of nanoparticles. The curing procedure also affected the coating protection performance. Corrosion protection performance of samples cured in the oven were better than other samples.

کلمات کلیدی:

Silicon nitride-Epoxy- Nanocomposite Coatings- Corrosion test- Electrostatic

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