عنوان مقاله:

Dependence of adhesion strength of an acrylic clear coat on fractal dimension of abrasive blasted surfaces using image processing

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خلاصه مقاله:

Substrate surface roughness, irregularity and morphology are controversial issues in surface coating science which influence coatings adhesion. In this study, differently roughened mild steel samples were generated using abrasive blasting with varying particles to investigate the impact of surface roughness on the adhesion of an acrylic clear coat. Fractal dimensions (FD) of sample surfaces were estimated using box counting method. For this purpose, different resolutions of sample images were prepared using a digital scanner. We measured conventional roughness parameters of the samples employing a contact profilometer. The results of adhesion strength and scanning electron microscope studies showed that the FD of low resolution images is a more efficient parameter for quantifying surface irregularity and morphology compared with conventional roughness parameters.

کلمات کلیدی:

Roughness- fractal dimension- Adhesion- Box counting- Abrasive blasting

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