

What is the significance of fractal analysis in nanotechnology?

Fractal analysis involves the study of inter-relation between a physico–chemical property of an interface (e.g. adhesion) and its fractal dimension. Conceptual understanding of fractal analysis is relevant in nanotechnology as it concerns itself with interfacial phenomena associated with nanostructured surfaces.

In the field of coating technology, the following situations lend themselves to exploration with fractal analysis:

1. Dispersion of pigment and filler powders will be governed by fractality of powder surfaces as it influences turbulence and mixing.
 2. Adhesion on blasted surfaces
 3. Phosphated metal surfaces and their contribution to adhesion and corrosion protection
 4. Adhesion on plastic surfaces treated by various techniques
 5. Relation between fractality of the metal substrate and film smoothness of the subsequent coats
 6. Corrosion protection and fractality of the untreated substrates.
 7. Relation between the filler size, intercoat adhesion and fractality of the film surface.
 8. Hydrophobicity/Hydrophilicity of coatings
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