

## Accepted Manuscript

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PII: S0169-4332(15)00050-1  
DOI: <http://dx.doi.org/doi:10.1016/j.apsusc.2015.01.038>  
Reference: APSUSC 29474

To appear in: *APSUSC*

Received date: 24-9-2014  
Revised date: 24-12-2014  
Accepted date: 7-1-2015

Please cite this article as: A. Ghasemi-Kahrizsangi, H. Shariatpanahi, J. Neshati, E. Akbarinezhad, Corrosion Behavior of Modified Nano Carbon Black/Epoxy coating in Accelerated Conditions, *Applied Surface Science* (2015), <http://dx.doi.org/10.1016/j.apsusc.2015.01.038>

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# Corrosion Behavior of Modified Nano Carbon Black/Epoxy coating in Accelerated Conditions

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## Abstract

The electrochemical behavior and anticorrosion properties of modified carbon black (CB) nanoparticles in epoxy coatings were investigated in accelerated conditions. Nanoparticles of CB were modified by sodium dodecyl sulfate (SDS) as surfactant. Dispersion of nanoparticles into epoxy was confirmed by Transmission Electron Microscopy (TEM). The accelerated condition was prepared at 65°C. CB nanoparticles improved corrosion resistance of the epoxy coating. The optimum concentration of CB in the epoxy coating was 0.75% wt. Results showed that the CB hinder the corrosion due to its barrier properties. CB can decrease the diffusion coefficient of water in the coating with filling the micropores.

**Keywords:** Epoxy Coatings, Modified Carbon Black, EIS, Salt Spray, Diffusion Coefficient.

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