Short Communication

Epoxy/Nano-SiO₂ Anticorrosion Coatings Synthesized by Different Molar Ratio of Tetraethyl orthosilicate (TEOS) and Tetramethyl orthosilicate (TMOS)

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doi: 10.20964/2019.12.06

Received: 24 June 2019 / Accepted: 12 August 2019 / Published: 29 October 2019

Epoxy/nano-SiO₂ composite coatings were carried out by using epoxy with different TEOS/TMOS molar ratio. Nano-silica particles, which were synthesized by different molar ratio of tetraethyl orthosilicate (TEOS) and tetramethyl orthosilicate (TMOS), manifested different characteristics in particle size and modifier graft coverage. The structure was analyzed by FT-IR, XRD and SEM. The particle size of the silica was correspondingly reduced and the surface coverage of the APTES decreased with the TMOS content reduced. Thus, the particle size and surface coverage of the APTES play an important role in corrosion resistant of epoxy/nano-SiO₂ composite coatings. The results showed that the composite coating had the best anticorrosion effect when the molar ratio of TEOS / TMOS was 1: 1.

Keywords: Epoxy coatings; Nano-silica; Nanoparticles; Corrosion

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