Presentation title: Corrosion Protection by Organosilane Self Assembled Monolayers

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Abstract:

Self assembled monolayers can be used to produce surfaces with different properties than the substrate itself. Self assembled monolayers of decyltriethoxysilane and octadecyltriethoxysilane were formed on Al 2024 creating a hydrophobic surface. The surfaces were characterized by contact angle, x-ray photoelectron spectroscopy, and infrared spectroscopy. Electrochemical impedance spectroscopy in 0.5 M NaCl was used to evaluate their corrosion protection properties. The role of the monolayer in corrosion protection and aluminum oxide formation will be discussed with special focus given to the hydrophobic nature of the surface and the chemical bonding of the siloxane to the surface. Future applications of self assembled monolayers for surface modification and corrosion protection will be presented.