

HIGH-PERFORMANCE THERMOSETS AND SEMI-FLUORINATED POLYMER PROTECTIVE COATINGS

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The consequences of corrosion are extremely costly and troublesome. Corrosion is considered a chronic problem that causes sudden disruptions in many segments of industrial operations. Protection against corrosion is, therefore, desirable, as it helps achieve extended service life for metals and reduced corrosion-related costs. Broader application of protective coatings remains one of the best technical practices in minimizing the effects of corrosion. This plenary talk introduces different classes of high-performance polymeric materials and composites based on thermosets (e.g. polybenzoxazines and epoxies) and fluoropolymers as new groups of corrosion-resistant materials. Fluoropolymers are increasingly gaining interest in the coating industry, but their nonstick nature limits their application as it often leads to poor film adhesion to various surfaces. Different approaches to improving their surface adhesion, including the use of conducting polymer primers, green additives, and ceramic inclusions, are aimed at maximizing the benefits of fluoropolymer properties across a wide array of surface protection applications.

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