NCON-PGR_2022_033

Benzotriazole (BTA) as Corrosion Inhibitors Encapsulated in the Micro/ Nanocontainer for Smart Coating: A Review

N.S. Mohamed *and* ***J. Alias****

Faculty of Mechanical and Automotive Engineering Technology, Universiti Malaysia Pahang, 26600 Pekan, Pahang, Malaysia

**Corresponding author*: juliawati@ump.edu.my

Abstract

The development of functional smart coating with the ability for active anti-corrosion and self-healing are significant for long term performance of numerous engineering application. Smart coating is a multifunctional coating containing self-healing chemical and corrosion inhibitor incorporated into the coating, allowing the metallic structure to recover from any damages. The most important aspect in developing smart coating is creating micro/nano-container that are compactible to encapsulate and sustain the active substance by having permeability shell that can respond to the external stimuli. Benzotriazole (BTA) has been extensively studied as corrosion inhibitor to regulate of iron, steel, copper, nickel, aluminum, and zinc by the formation of a protective surface film. This review presents the fabrication technique of the BTA loaded micro/nano-container, characterization of the chemical structure and evaluation of the corrosion performance.

Keywords: Smart coating; Corrosion inhibitor; Benzotriazole; Nano-container; Corrosion