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ANTICORROSIVE PROTECTION SYSTEM BASED ON NANOCOMPOSITES

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Abstract

Corrosion control, using inhibitors like, polymerisable porphyrins and multifunctional nanocomposites, is extremely useful in many environments. Phosphogypsum is a waste product resulted from the process of obtaining the phosphoric acid and it can be also used as corrosion inhibitor; in a mixture with other coating materials.
Two types of modified porphyrin: Na_4TFP Ac - dissolved in KOH and H_2SO_4 and H_2TPP - dissolved in benzonitrile, were tested. The structure characterization of phosphogypsum was analyzed through SEM and X-ray diffraction. The efficiency of the complex multifunctional system was investigated in the salt spray chamber, using diverse exposure conditions. The corrosion resistance was studied by cyclic voltammetry, in 20% Na_2SO_4 electrolyte solution. The multifunctional nanocomposites used as coating systems improve the anti-corrosion properties of electrodes.

Key words: corrosion, nanocomposites, phosphogypsum, porphyrins, voltammetry

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