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Nano-Coating for Corrosion Prevention

Authors : M. J. Suriani, F. Mansor, W. Siti Maizurah, I. Nurizwani

Abstract : Silicon Carbide (SiC) is one of the Silicon-based materials, which get interested by the researcher. SiC is an emerging semiconductor material, which has received a great deal of attention due to their application in high frequency and high power systems. Although its superior characteristic for a semiconductor material, its outstanding mechanical properties, chemical inertness and thermal stability has gained important aspect for a surface coating for deployment in extreme environments. Very high frequency (VHF)-PECVD technique utilized to deposit nano ns-SiC film in which variation in chamber pressure, substrate temperature, RF power and precursor gases flow rate will be investigated in order to get a good quality of thin film coating. Characterization of the coating performed in order to study the surface morphology, structural information. This performance of coating evaluated through corrosion test to determine the effectiveness of the coating for corrosion prevention. Ns-SiC film expected to possess better corrosion resistance and optical properties, as well as preserving the metal from the marine environment. Through this research project, corrosion protection performance by applying coating will be explored to obtain a great corrosion prevention method to the shipping and oil and gas industry in Malaysia. Besides, the cost of repair and maintenance spending by the government of Malaysia can be reduced through practicing this method.

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