

PROCESS AND PRODUCT TECHNOLOGY

氯化2,3,5-三苯基-2氢-四唑及2,4,6-三(2-吡啶基)-s-三嗪在HCl中对碳钢的缓蚀作用

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摘要 Electrochemical measurement, quantum chemical method, and scanning electron microscopy (SEM) were performed to investigate the inhibitive effect of 2,3,5-triphenyl-2H-tetrazolium chloride (TTC) and 2,4,6-tri(2-pyridyl) -s-triazine(TPT) on the corrosion of mild steel in 1mol/L HCl at room temperature. Impedance spectroscopy measurement showed that the polarization resistance increased and that double layer capacitance decreased with the increase in the inhibitive concentration, and the results of potentiodynamic polarization showed that the inhibitors suppressed both cathodic and anodic processes of steel corrosion without change in the mechanism. Higher the orbital density distribution strength of the lowest unoccupied molecular orbital, higher is the molecule dipole, and lower energy gap between the energy of the highest occupied molecular orbital and the energy of the lowest unoccupied molecular orbital resulted in higher inhibitory efficiency. The results of SEM analysis showed that the metal was protected from aggressive corrosion by the addition of TTC and TPT.

关键词 [corrosion inhibition](#) [quantum chemistry](#) [electrochemical measurement](#) [scanning electron microscopy](#)

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2,3,5-Triphenyl-2H-tetrazolium chloride and 2,4,6-tri(2-pyridyl)-s-triazine on the corrosion of mild steel in HCl

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Key words [corrosion inhibition](#); [quantum chemistry](#); [electrochemical measurement](#); [scanning electron microscopy](#)

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