Influence of vanadium on the corrosion behavior of high manganese steel in 0.5M H2SO4 solution

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Abstract : The effect of vanadium on the corrosion behavior of high manganese steel in 0.5MH2SO4 solution has been investigated using potentiodynamic polarization, linear polarization and impedance spectroscopy.The results showed that the addition of vanadium in high manganese steel decreases the corrosion current density from2.1mA.cm-2 to1.29mA.cm-2. The impedance diagrams show the existence of a single capacitive loop that is attributed to the charge transfer reaction and time constant of the electric double layer.

Keywords : Vanadium, corrosion, Manganese, Impedance.