Micrografias ópticas in situ acopladas a técnicas eletroquímicas para analisar o processo de corrosão

In situ optical micrographs coupled with electrochemical techniques to analyse corrosion process

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Resumo: The use of time acquisition of optical microscopic images coupled to electrochemical techniques (polarization and open circuit potential) to study the corrosion of carbon steel in different media will be addressed. These coupled techniques will be used to study the corrosion of steel with different compositions and corrosive media, such as aqueous solutions of chlorides, sulfides, acetates and the mixture of paraffin hydrocarbons with emulsified aqueous solution containing sulfides and chloride ions. The advantage of the coupling of the techniques is the preservation of the spatial coordinates of the surface. In this way, we can study as many generalized processes as localized ones, such as grain contour corrosion and pites, by monitoring the transformations that occur locally in real time. With this coupling it was possible to study the kinetic growth of the pites estimating the variation of the depth of the same in real time, relating the two-dimensional information (image) with the faradaic charge that passes during the localized dissolution.

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