

Study of corrosion inhibitors using an electrochemical microcell with electrolyte flow

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Abstract.

The conventional electrochemical techniques provide valuable information about corrosion processes. However, these techniques use big study areas (mm^2 to cm^2), in which it isn't possible to study local processes due to surface heterogeneity. For this reason many electrochemical methods have been developed, such is the case of the electrochemical microcell. This technique was first introduced by H. Böhm¹ et al in parallel with M.M Lorengel² et. al for microscale electrochemical surface analysis. In this paper we present an alternative design of an electrochemical microcell with electrolyte flow which was validated by cyclic voltammetry of the potassium ferro/ferricyanide system.

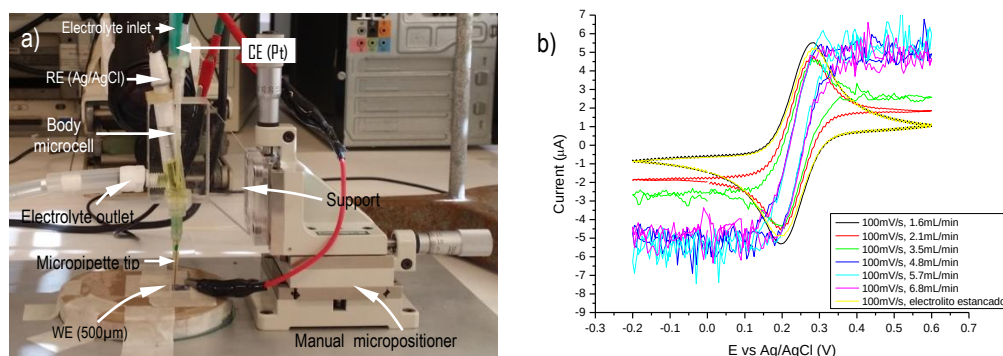


Figure 1. a) Electrochemical microcell, b) Cyclic voltammogram of platinum working electrode in a solution containing 10mM Potassium Ferro/Ferricyanide in 1M KNO_3 with different flows and scan rate to 100mV/s.

After the validation processes, the microcell will be used in the evaluation of the corrosion inhibition behaviour of a series of ionic liquids and other corrosion inhibitors such as eugenol on steel and copper.

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