

SCREENING EFFECT ON THE ELECTRICAL BEHAVIOUR OF SILICON IN HF SOLUTIONS

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Abstract:

The electrical behaviour of the P-Si in HF solutions of the modification of the silicon electrolyte interface is studied. In this purpose, different deposits were realised (CH_x , TiC and porous film). Current-potential (I-V) characteristics of CH_x coated electrodes in 5%HF and TiC Coated electrodes under the same conditions, are shown similar to those obtained with silicon [1,2]. In both cases two current maxima are observed. The intensity of these peaks decreases with increasing thickness of the CH_x and Tic films becomes resistive and screen the electrochemical carriers transfer at the Si-HF interface [3]. The I-V characteristics of a fresh electrode and an oxidized sample under the same conditions as previously described were studied. It indicates that oxide layer at the Si surface becomes resistive and blocks the electrochemical carriers transfer at the Si-HF interface. The results of electrochemical behavior of p-Si/TiC, p-Si/ CH_x and p-Si/porous silicon in HF solutions suggests that the carriers transfer at Si/HF interface is affected by the thickness of the deposit films.