PREPARATION AND CONTROL SURFACES CONTACT FOR DEPOSITION THIN FILMS POLYANILINE

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1. Introduction

Research in recent years highlight the importance of the control surfaces for the preparation of thin films. The cleaning method, the preparation of substrates and deposition technique are essential to the mastery of these surfaces that directly influence the development of films for applications in quality electronic devices. The measurement of the contact angle is an important technique to characterize the sample through the interaction between the liquid and the surface, to obtain properties such as wettability and adhesion between the liquid and the surface of the material. In this work, the surface of the substrate was cleaned using the RCA method. Deposition and growth control films, contact angle measurements were performed at different time intervals.

2. Experimental

To ensure the homogeneity and controlled growth, the surfaces of the substrates (glass plates) were cleaned by partially RCA method. In this method use $NH_4OH/H_2O_2/H_2O$ at a ratio 1: 1: 5 at 70 ° C for removal of fats and some metal from the surface of the blade. Then, the slides are subjected to rinsing with DI water (deionized) and dried with nitrogen spray. Deposition of films was performed by the in-situ method, obtained during conventional chemical synthesis of polyaniline (PAni). In this process, the films grow during polymerization of aniline with a control of time and temperature. The contact angle measurements were performed using the goniometer Ramé-Hart model 300-F1. In this process, droplets of the test liquid are added (volume 2µl) over the substrate, followed by three contact angle measurements. The analyzes were performed at different time intervals and this procedure was performed four times.

3. Results and Discussions

UV-Vis spectroscopy measurements show an increase in absorbance PAni films at approximately 850 nm, indicating an increase of polyaniline layer or growth of small granules on its surface. After deposition of the polymer on glass substrates were held contact angle measurements between liquid and tests polymer surface in a controlled environment with 60% relative humidity and 21 ° C temperature. The PAni films thicker and more deposition time have lower hydrophobicity. These measures show the dependence of chemical composition in the drying of the films on the substrate. The procedures for cleaning and drying the substrates, as well as the time and temperature control of the reaction through chemical synthesis interfere with the growth and quality of PAni films adsorbed on the surface of the substrates.

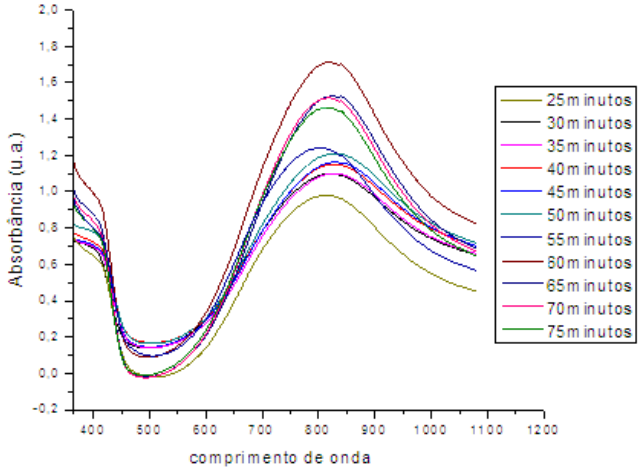

Fig. 1. *Spectroscopy measurements of UV-visible depending on the deposition time.*

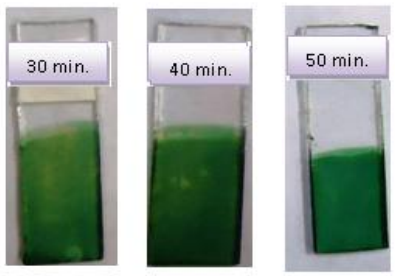

Fig. 2. *Thin films of polyaniline obtained as a function of deposition time.*

4. References

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