

## **STUDIES ON THE STRUCTURE OF SEMI-PERMEABLE MEMBRANES BY MEANS OF SEM PROBLEMS AND POTENTIAL SOURCES OF ERRORS**

Andrzej Chwojnowski, Cezary Wojciechowski, Dorota Lewińska, Ewa Łukowska,  
Joanna Nowak, Barbara Kupikowska-Stobba, Marcin Grzeczkwicz

*Nalęcz Institute of Biocybernetics and Biomedical Engineering, Polish Academy of Sciences,  
Warsaw, Poland*

### **Abstract**

The effect of sputtering with a conductor of the semi-permeable membranes surface on SEM pictures obtained is presented. On the example of photomicrographs of several different types of semi-permeable membranes, changes in the appearance of various membrane surfaces, uncovered and sputtered with thicker and thicker layers of the conductor are presented. It has been shown, how essential differences in the appearance of the studied material can be caused by the deposited conductor. It has been shown what errors in the interpretation of SEM images can be caused by applying the sputtered conductor layer with a thickness insufficient to the structure and properties of the studied material. Necessity of minimizing the layer thickness of the sputtered conductor and experimental determination of the sputtered layer thickness was found. Appropriateness of taking the pictures in the mode without sputtering and necessity of comparing the pictures with and without sputtering have been suggested. The useful way of carrying out magnifications' of membranes made of polymers of low melting points has been also presented.

**Keywords:** SEM, semi-permeable membranes, polymeric microcapsules, membrane studies