

POLYURETHANE FOAM WITH ANTIMICROBIAL ACTIVITY

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This paper presents a theme from a new and very interesting domain of the polyurethane industry: the synthesis of polyurethane material with antimicrobial properties. Due to the diversity of these materials and due to the fact that so many applications are in contact with human body, it is a problem to sterilise the plastics or more than that: to include antimicrobial substances (antibiotics and antiseptics) in the polymer matrix.

The first activity consist of a polyurethane flexible elastomer synthesis, a polymer with reactive functional groups (carboxyl and aminic groups) synthesized by using Elastoflex W5516/115[®] used in automotive industry. In the second part of this study, we adsorb different antimicrobial substances on thin polymer films. Before this adsorption, the polyurethane films will be prolonged UV irradiated in order to sterilize them and the absence of bacteria will be evaluated by different methods. The next step was the adsorption on the surface of the polymer, this will be done by introducing these polyurethane films into antimicrobial substances solutions at room temperature under slow stirring and finally these films will be washed with salt solution to remove the antimicrobial excess. Finally, for the determination of the antimicrobial adsorbed quantity we used *E. coli* and counting chambers.

Account on all these, the antimicrobial substances adsorption on the polyurethane materials surface is a novelty in the international level. The interest for this disease prevention method is great for the commercial firms which produce different furniture elements or medical devices.