

Abstract

Characterization of Metal Nanoparticles/Polyurethane Foams for Practical Applications [†]

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1. Introduction

Polyurethane foam can generally be defined as an expanded cellular product produced by the interaction of active compounds with hydrogen, water and isocyanates. Our goal was to develop composite materials with antimicrobial properties provided by silver nanoparticles obtained by the radiation-assisted method [1].

2. Materials and Methods

The developed, fully characterized nanoparticles were dispersed in polyurethane foam, which was further characterized in terms of mechanical properties (using the DMA method) and structure (using the SEM-EDX method).

3. Results

Below you can see one of the six models of polyurethane foam developed (Figure 1).



Figure 1. Polyurethane foam model.

4. Conclusions

The obtained results allowed the proposal of innovative nanoparticle-based polyurethane foams for testing the antimicrobial potential of the materials, as well as for real-life applications.

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