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# BOOK of ABSTRACTS


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# BOOK OF ABSTRACTS

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PS 005

# THERMO-MECHANICAL PROPERTIES OF RIGID POLYURETHANE FOAMS WITH CEMENT ADDITION

Ivan Ristić[1], Vladan Mićić[2], Suzana Cakić[3], Radmila Radičević[1], Vojislav Aleksić[2], Aleksandra Miletić[1], Stefan Pavlović[2]

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The parameters of foam preparation, such as addition of fillers, have a significant effect on the properties of polyurethane foams. The goal of this work was to study the effect of the cement addition on the thermo-mechanical properties of rigid polyurethane foams. Isocyanate component was based on polymeric diphenylmethane diisocyanate, and polyol component was polyether type, with addition of castor oil as polyol. It was estimated that the addition of cement increased the values of foam compressive strength and permanent deformation. Compressive strength increased even more than 90% with 20 wt% of cement. Further increase of the cement loading deteriorates the mechanical properties of foamed material because it distorts cellular structures of obtained materials. Addition of cement increased the value of the glass transition temperature of polyurethane foam. The highest increase in the value of glass transition temperature, for 7.5°C, was achieved by the addition of 20 wt% of cement.

**Key words**: polyurethane foam, polymer reinforcement, thermal properties