

BOOK of ABSTRACTS

25th Congress of Chemists and Technologists of Macedonia



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Сојуз на хемичарите и технолозите на Македонија

Society of Chemists and Technologists of Macedonia

**25th Congress of SCTM
with international participation**

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POL P-1

INVESTIGATION OF THE STRUCTURE AND SURFACE PROPERTIES OF NOVEL POLYURETHANE NETWORKS BASED ON POLYCAPROLACTONE

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Polyurethane networks (PUN) represent versatile materials which are usually consisted of different hard (HS) and soft segments (SS). They possess very good mechanical, thermal and surface properties. Such properties originate from their different composition, chemical structure of the crosslinking agent and molecular weights of the HS and SS [1].

In this work, series of PUNs was obtained by catalyzed two-step polymerization method in the solvents mixture. The PUNs were based on polycaprolactone macrodiol that represents SS and 4,4'-diphenylmethane diisocyanate and Boltorn[®] hyperbranched polyester of the second pseudo generation which were selected as the HS. Six PUNs were synthesized with different content of SS (from 10 to 60 wt.%).

The structure and surface properties (morphology, swelling behavior and water absorption) of the synthesized PUNs was examined in order to investigate these materials for potential application in coatings.

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Keywords: polyurethane networks; polycaprolactone; hyperbranched polyester; surface properties; coatings.