

bibliography the development of nanocomposites of PVC with clays may be found, where particularly the problem of homogeneous distribution of the nanofiller in the PVC matrix and the improvement of certain mechanical properties of this kind of nanocomposites, is usually discussed.

The aim of this research was to study the possibility of homogeneous distribution of the carbon nanotubes (CNT) in the PVC matrix, and to characterize its mechanical and electrical properties, as well as the modification of the glass transition temperature.

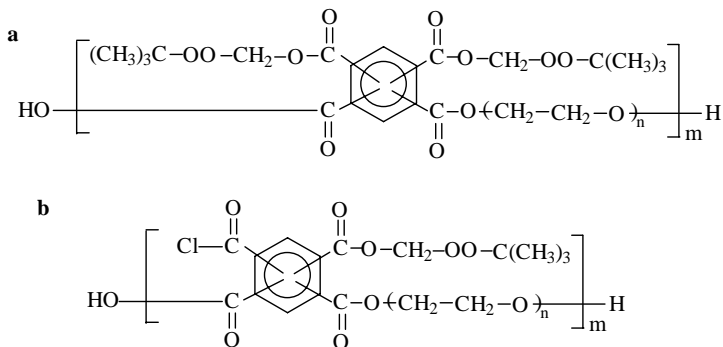
The matrix of the nanocomposites was prepared by the dry blend procedure, of PVC S 70 Polanwil (Anwil Poland) 100 wt. %, with 10 wt. % of plasticizer DINP (Exxon, Germany) and 4 wt. % of tin stabilizer MOK 17 (Accros, Belgium). The CNT (Nanocyl, Belgium) in a concentration between 0.01 wt. % and 0.05 wt. % were homogenized by use of a sonificator, and introduced to the PVC composition.

The changes of several physical properties, like improvement of mechanical modulus and of electrical conductivity may be explained by the composition dependent changes of chain mobility, and particularly by a certain intermolecular interaction between the PVC matrix and the carbon nanotubes.

## **POLY(ETHYLENE TEREPHTALATE) SURFACE MODIFICATION BY PEROXIDE OLIGOMERS AND DEXTRAN**

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One of the general tendencies in the development of polymer chemistry is modification of polymer surface. Effective modifiers of polymer surface are polymeric and oligomeric peroxides. Novel oligoperoxides with a good affinity to the poly(ethylene terephthalate) (PET) have been synthesized:



*(a) - Oligoperoxide with primary-tertiary dialkyl peroxy groups (PMP);  
 (b) - oligoperoxide with residual acid chloride groups (PMCP);  $n = 9$ ;  $m = 3\text{--}5$*

They are capable of attaching to PET surface and under heating to form free radicals, bonded with surface. These radicals can act as active centers of the grafting of other polymers, in particular dextran, to the PET surface.

The measurement of the static contact angles of two liquids: water and methylene iodide, positioned on PET surface was used for endorsement of its modification.

It was shown, that modification of the PET surface with oligoperoxides significantly changes the value of surface energy and results in considerable augmentation of its hydrogen component and minor decrease of dispersion interaction. This fact can be explained by piling, on the surface of PET of polar fragment e.g. carboxylic groups, which are presented at the oligoperoxide structure.

The changes in topography of the surface were shown using the atomic-force microscopy. The results obtained are in accordance with the changes in contact angles of testing liquids.

Formation of the attached layer of oligoperoxide on the PET surface, allows grafting of additional layer of polysaccharide, dextran in particularly. To achieve higher degree of PET surface modification, the oligoperoxide and dextran could be laid onto PET surface simultaneously, using “spin coating” method. The attachment of the dextran macromolecules to PET surfaces was confirmed by both methods mentioned above.

The obtained results allow us to propose architecture of oligoperoxide - dextran layer, in which dextran macromolecules are grafted to

oligoperoxide layer and are partially clenched in its cured structure. Simultaneously, oligoperoxide is bonded with both PET surface and dextran macromolecules.

## THE OBTAINING OF PETROLEUM POLYMERIC RESINS IN THE PRESENCE OF EPOXY RESINS PEROXY DERIVATIVES

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It has been shown previously that petroleum polymeric resins with functional groups can be obtained by radical copolymerization of unsaturated compounds present in the C<sub>9</sub> fraction of hydrocarbon pyrolysis in the presence of aliphatic azocompounds with hydroxy, carboxy, epoxy and peroxy groups.

It is suggested in this work to use oligomeric peroxides as initiators for the copolymerization reaction of the C<sub>9</sub> fraction for the obtaining of petroleum polymeric resins (PPRs) with epoxy groups by following formulae:

