



**NEW TYPE OF OLEFIN-MALEIC ANHYDRIDE COPOLYMER BASED COUPLING AGENTS FOR
CARBON NANOTUBE CONTAINING POLYMER COMPOSITES**

Cs. Varga^{a,*}, A. Szentes^b, L. Bartha^a, G. Horváth^b

^a Institutional Department of MOL Hydrocarbon & Coal Processing, Institute of Chemical and Process Engineering, Faculty of Engineering, University of Pannonia; ^b Institutional Department of Chemical Engineering Science, Institute of Chemical and Process Engineering, Faculty of Engineering, University of Pannonia; ^{a,b} Egyetem u.10. Veszprém H-8200, Hungary

*e-mail: vczilla@almos.uni-pannon.hu

For development of plastic nanocomposites with advantageous mechanical properties two critical factors are generally to be taken into account. These are the proper dispersion of the nanotubes in the matrix and the essential need for the strong interfacial interactions between the nanotubes and the functional groups of the polymer molecules.

In our experimental work newly developed olefin-maleic-anhydride copolymer based coupling agents have been applied for treatment of the carbon nanotubes (CNTs). The surface treated CNTs have been applied for reinforcing PP in a concentration of 0.5-5wt%. Tensile and flexure strength of the untreated CNT containing PP could be improved by at least 10-30% depending on the structures of the coupling agents. The fractured surfaces of the composites have been investigated by SEM indicating strong interaction between the CNTs and the polymer where the increased mechanical properties of the composites could be achieved.