

PO3019

**Effect of low temperature air plasma treatment on physico-chemical properties of kaolinite**Lubomir Lapcik<sup>1</sup>, Ivo Krasny<sup>2</sup>, Ivana Kupskaa<sup>2</sup>, Barbora Lapcikova<sup>3</sup>

<sup>1</sup>Center of Polymer Systems, Tomas Bata U., Zlin, Czech Republic <sup>2</sup>Tomas Bata University in Zlin, Inst. Physics & Mat. Eng., Zlin, Czech Republic <sup>3</sup>Centre of Polymer Systems, Faculty of Technology, Tomas Bata University in Zlin, Zlin, Czech Republic

lapcik@ft.utb.cz

It was found in this study that air plasma treatment of particular kaolinite has led to the change of its wettability. This was reflected in the decreased values of water contact angles of wetting. There were determined yield locus and flow function dependencies at different stress levels for virgin and different time plasma treated samples (flow index -  $ff_c$ , effective angle of internal friction -  $\phi_e$ , unconfined yield strength -  $\sigma_c$ ). It was found that by plasma treatment the character of the flow was shifting from region of very cohesive ( $ff_c = 2.39$ ) to the cohesive ( $ff_c = 3.19$ ). For untreated samples effective angle of internal friction was decreased with increasing applied consolidation stress, while for plasma treated kaolinite it was increased.

**Acknowledgements**

This article was created with support of Operational Program Research and Development for Innovations co-funded by the European Regional Development Fund (ERDF) and national budget of Czech Republic within the framework of the Centre of Polymer Systems project (reg. number CZ.1.05/2.1.00/03.0111).

**Keywords**

kaolinite  
air plasma  
wetting  
powder rheology  
crystal lattice