WETTABILITY AND SURFACE PROPERTIES OF AIR PLASMA TREATED PAPER-BASED COMPOSITE SURFACE (LONG MODIFICATION TIME)

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The aim of the study was comparison of surface properties of plasma modified paper-based composite samples. The

substrates were activated by air plasma for 30 seconds. Then the contact angle measurements by the sessile droplet method were made to examine wettability of the surfaces. The surface free energies were also calculated using the contact angle hysteresis (CAH) method proposed by Chibowski in order to compare the properties of the obtained surfaces. To get information about substrates structure after the plasma modification optical profilometers were made.





Fig. 4: Advancing and receding contact angles on the substrate modified by air plasma during 30 s.

Fig. 5: Topography (profilometry) of the surface modified by air plasma during 30 s.



Fig. 6: Surface free energy of the plate modified by air plasma during 30 s.

CONCLUSIONS:

✓ after the air plasma modification wettability, surface free energy and topology of the surface were changed;
✓ 30 seconds modification time does not significantly affect the surface properties compared to the 10 second modification;
✓ the surface gets more hydrophilic after the air plasma modification;
✓ there are changes in the surface roughness after the modification.