

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

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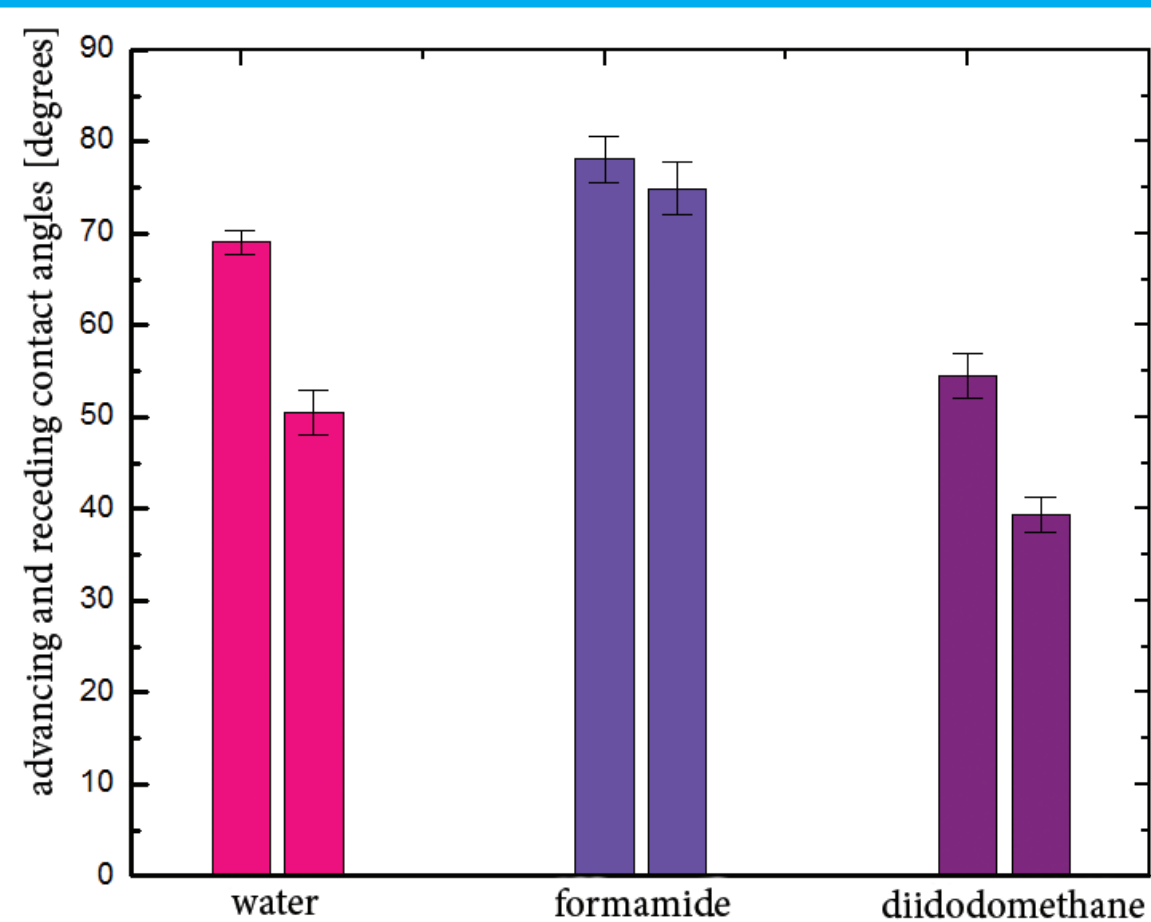


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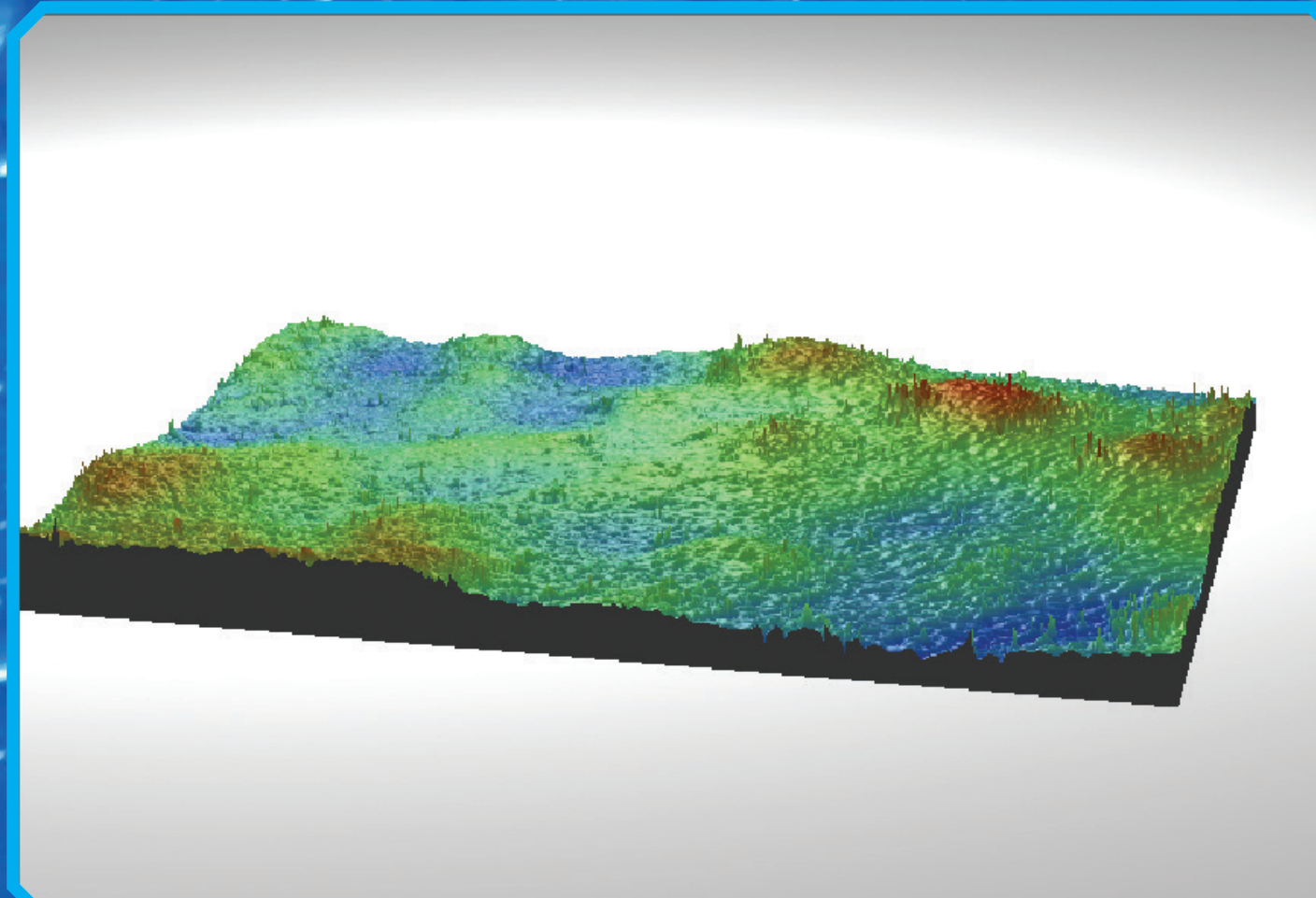


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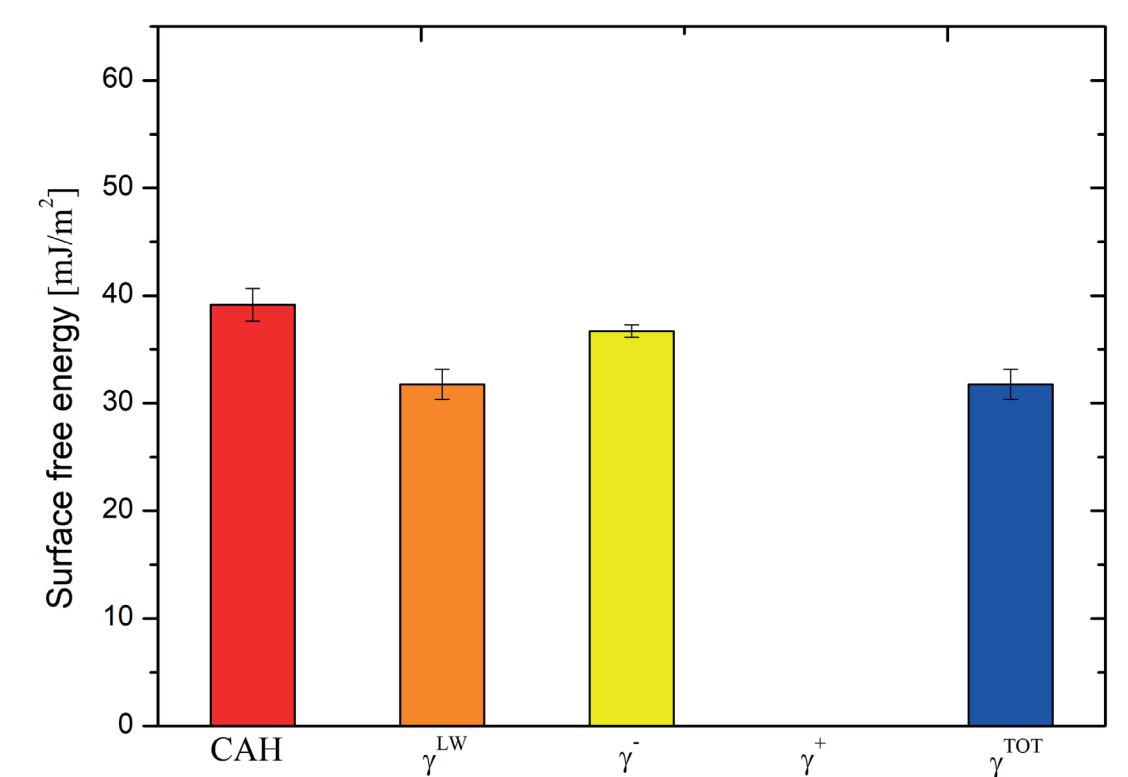
**The aim of the study** was comparison of surface properties of plasma modified paper-based composite samples. The substrates were activated by air plasma for 10 seconds. Then the contact angle measurements by the sessile droplet method were made to examine wettability of the surfaces. The surface free 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.



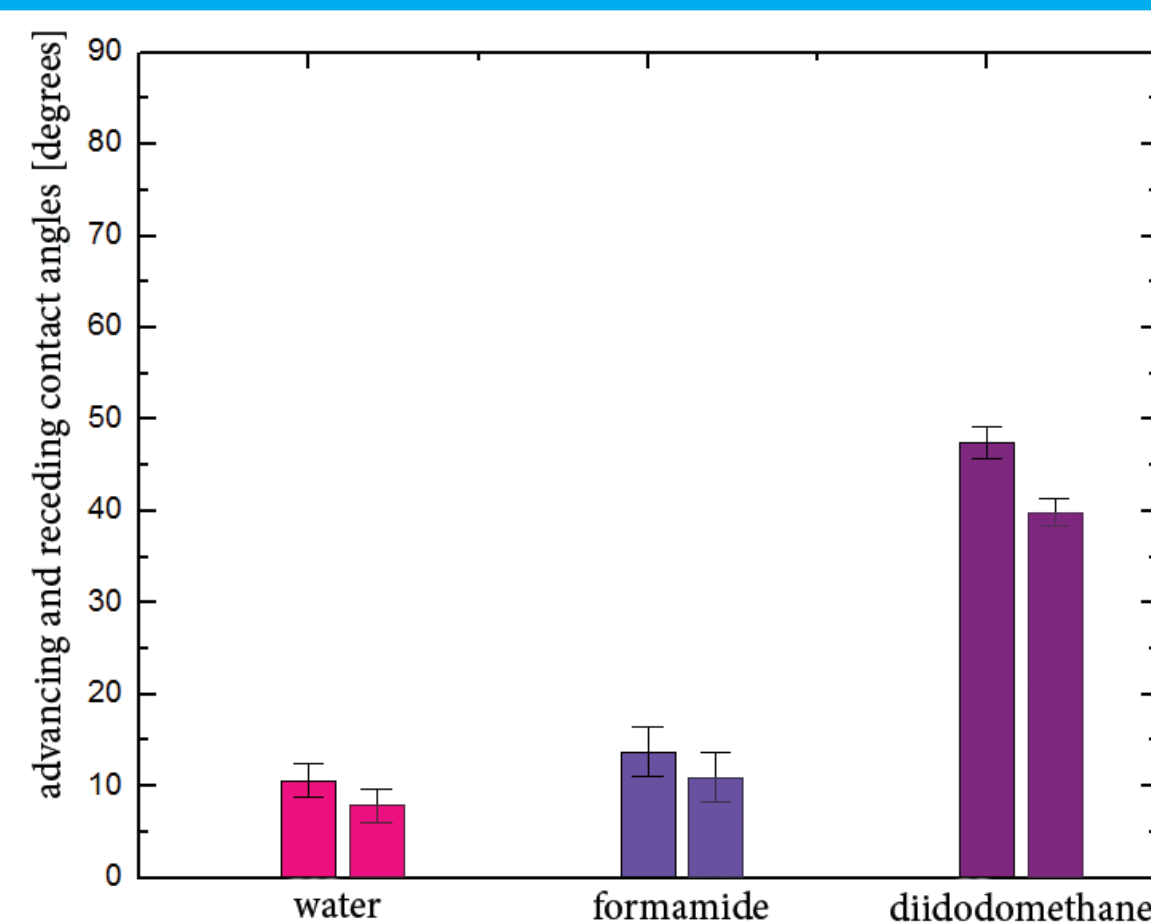
**Fig. 1:** Advancing and receding contact angles on the substrate non-modified by air plasma.



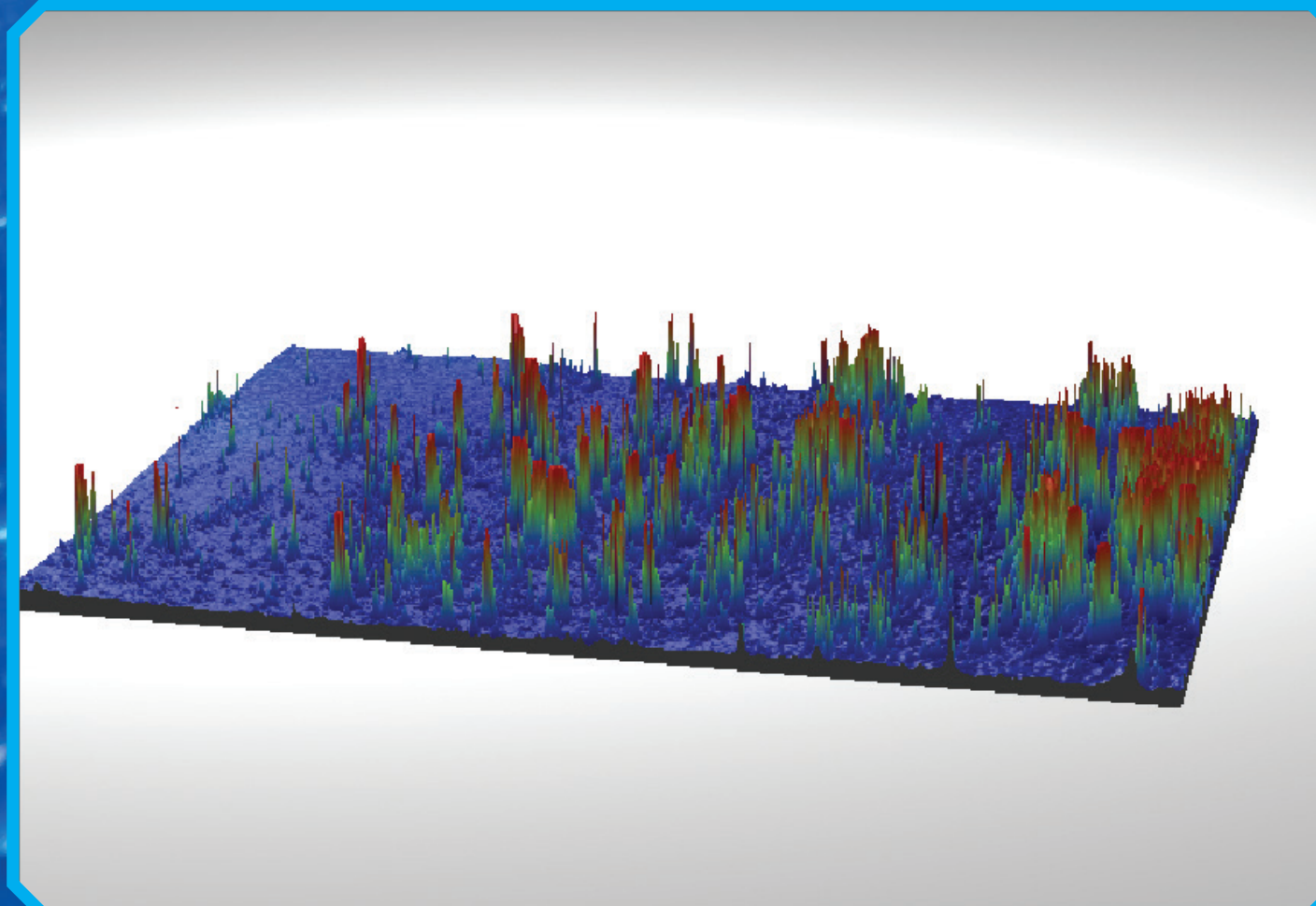
**Fig. 2:** Topography (profilometry) of the surface non-modified by air plasma.



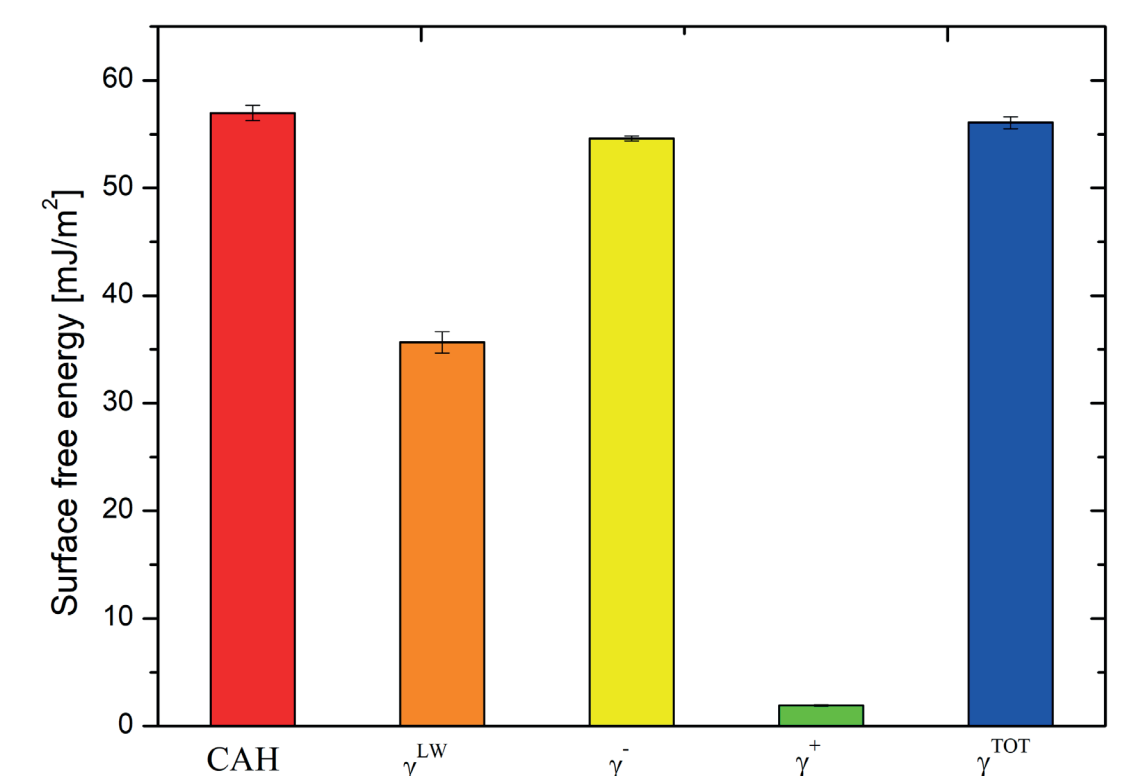
**Fig. 3:** Surface free energy of the plate non-modified by air plasma.



**Fig. 4:** Advancing and receding contact angles on the substrate modified by air plasma during 10 s.



**Fig. 5:** Topography (profilometry) of the surface modified by air plasma during 10 s.



**Fig. 6:** Surface free energy of the plate modified by air plasma during 10 s.

## CONCLUSIONS:

- ✓ after the air plasma modification wettability, surface free energy and topology of the surface were changed;
- ✓ the surface gets more hydrophilic after the air plasma modification;
- ✓ there are changes in the surface roughness after the modification;
- ✓ the structure of the surface is more complex after the treatment.