

# BOOK of ABSTRACTS



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## **INFLUENCE OF MODIFIED MONTMORILLONITES ON FORMALDEHYDE CONTENT IN UREA- FORMALDEHYDE/MONTMORILLONITE COMPOSITES**

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The effect of different montmorillonites (KSF and K10) and their modifications (Na-KSF, Na-K10) on content of formaldehyde-FA (free and liberated) modified urea-formaldehyde (UF) composites was investigated. KSF and K10 were modified by sodium chloride (NaCl). A total of four samples were synthesized, with the designations UF/KSF, UF/Na-KSF, UF/K10, and UF/Na-K10, under the same conditions. The content of free FA was determined by the bisulfite method. The hydrolytic stability of modified UF resin was determined by measuring the concentration of liberated FA of modified UF composites after acid hydrolysis. The specific surface area of the tested montmorillonites was determined by the Sear's method. Higher values of specific surface area were obtained for pure KSF (149.4 m<sup>2</sup>/g) compared to modified Na-KSF (48.6 m<sup>2</sup>/g). Specific surface area for pure K10 was 111 m<sup>2</sup>/g, compared to value of 71 m<sup>2</sup>/g for modified Na-K10. The amount of free and liberated FA was 0.4%, 0.12% and 1.2% and 2.3%, respectively for UF/KSF and UF/Na-KSF composite. The values for free FA for UF/K10 and UF/Na-K10 composite are the same and amount to 0.6%. It was concluded that the UF/Na-KSF composite has a smaller content of free FA (0.12%) compared to other UF composites. The UF/KSF composite has a higher resistance to acidic hydrolysis and lower liberated FA percent (1.2%).

*Keywords: Montmorillonite, Free and liberated formaldehyde, Urea-formaldehyde composite*

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