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**BOOK OF
ABSTRACTS**

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The effect of UV irradiation on hydrolytic stability of urea-formaldehyde resins filled with thermally modified montmorillonite

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The hydrolytic stability of organic-inorganic nano-composites prepared by a two-stage polymerization of urea-formaldehyde resin (UF) filled with thermally activated montmorillonite (MMT) has been assessed before and after UV irradiation. The physical modification of MMT powder (type K10 with surface area 220 – 270 m²/g) was carried out by thermal treatment. The activated samples were designated as TA-K10 and the inactivated as NA-K10. The two types of urea-formaldehyde–MMT composites (UF/TA-K10 and UF/NA-K10) were synthesized. Obtained materials have been irradiated with different wavelengths of UV light (254 and 366 nm) and after that the hydrolytic stability was evaluated on the basis of free and liberated formaldehyde after acid hydrolysis. The free formaldehyde content in sample UF/TA-K10 that was irradiated was 0.60 % and it was smaller compared to the free formaldehyde content before irradiation (0.90 %). The content of the liberated formaldehyde from the modified UF composite which contains unmodified K10 was 2.04% compared to the cross-linked UF/TA-K10 where the content of the released formaldehyde was 2.82%. After UV irradiation of the UF/TA-K10 the content of the liberated formaldehyde decreased to 0.30% (for wavelength 254 nm) and 0.90 % (for wavelength 366 nm).



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