

**APPLICABILITY OF SELECTED STILBENE DERIVATIVES FOR MONITORING OF  
RADICAL POLYMERIZATION PROCESSES BY FLUORESCENCE PROBE  
TECHNOLOGY**

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Photoinduced free radical polymerization is one of the most often used processes in modern photochemical technologies. The photopolymerization is used for solvent-free production of polymer coatings applied on different products. Monitoring of rapid processes requires an appropriate fast measurement method and fast data acquisition and processing. From among the methods used for monitoring of polymerization processes, Fluorescence Probe Technology (FPT) is such a method well suited for monitoring of rapid photopolymerization processes in real time [1,2,3] (Fig.1.).

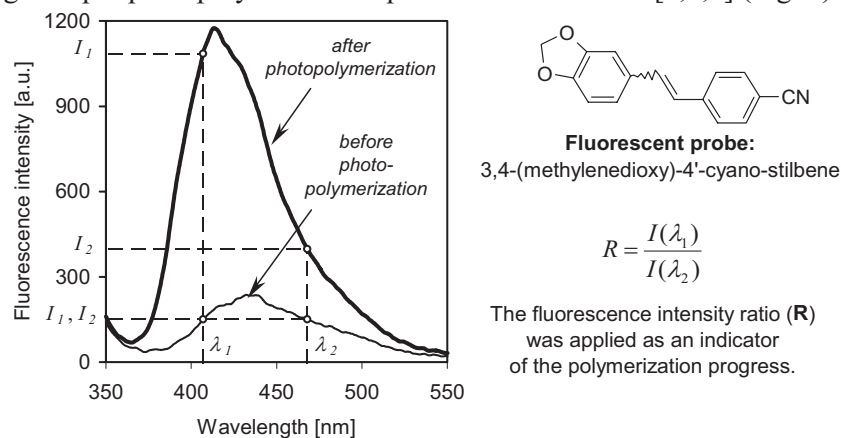


Fig.1. Example fluorescence spectra of fluorescent probe before and after photopolymerization of PEGDA monomer, showing the way the monitoring wavelengths for the ratio (R) were selected.

Applicability of a series of stilbene derivatives as fluorescent probes for monitoring of free radical photopolymerization by Fluorescence Probe Technology (FPT) has been studied. Poly(ethylene glycol) diacrylate was applied as a model monomer. It has been found that the probes containing electron withdrawing substituents shift their fluorescence spectrum with progress of free radical polymerization of the monomer, which enables monitoring of the polymerization progress using the fluorescence intensity ratio measured at two different wavelengths as the progress indicator.

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