

## MONITORING OF THE PROGRESS OF CATIONIC PHOTOPOLYMERIZATION WITH FLUORESCENT PROBES

**Joanna Ortyl, Roman Popielarz**

*Institute of Organic Chemistry and Technology, Faculty of Chemical Engineering and  
Technology, Cracow University of Technology,  
Warszawska 24, 31-155Kraków, jortyl@chemia.pk.edu.pl*

Photopolymerization processes are usually very fast, which is their basic advantage in practical applications, such as production of polymer coatings on various objects. 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 gaining increasing significance [1].

Fluorescent Probe Technology (FPT) is a new method, applicable for monitoring of polymerization processes by means of specially designed fluorescent molecular probes that change their fluorescence characteristics upon changes occurring in their environment [2]. These changes are usually followed with an appropriate rapid-scan spectrometer (Fig.1.).

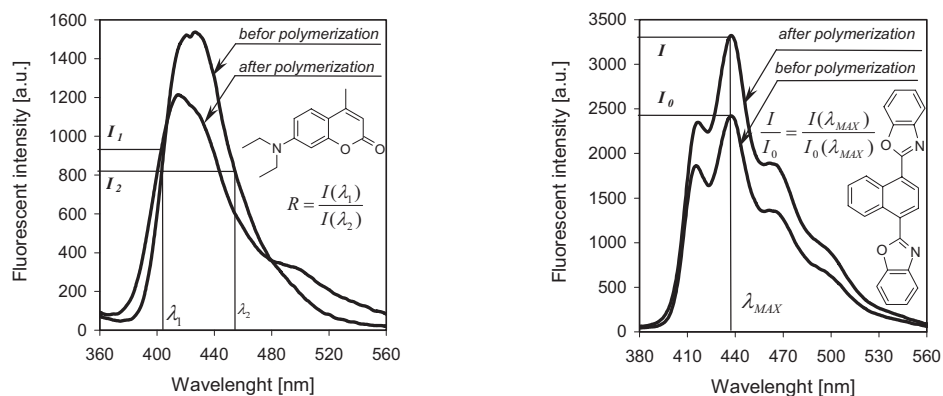


Fig.1. Example fluorescence spectras of probes –Coumarin 1 and KCB (1,4-bis(benzoxazol-2-yl)-naphthalene), before and after cationic photopolymerization of vinyl monomers.

The fluorescent probes usually shift their fluorescence spectrum and change fluorescent intensity with progress of the polymerization processes, which can be measured precisely with a spectrometer.

Theoretically every process that causes change of the system polarity or microviscosity should be able to be monitored by FPT. However, depending on the type of the process, and the monitoring parameters, appropriate structure and characteristics of the probe are required [3]. Therefore, there are no completely versatile probes.

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