

# PC 19

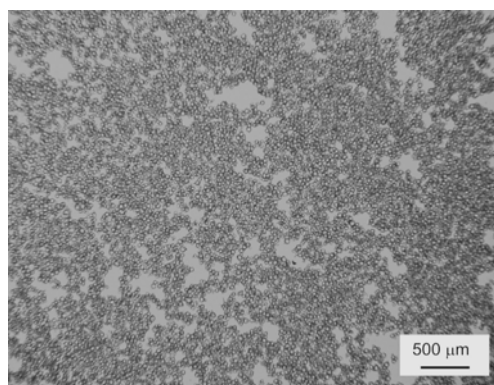
## MAGNETIC THERMORESPONSIVE POLY(*N*-ISOPROPYLACRYLAMIDE) MICROSPHERES: PREPARATION AND PROPERTIES

H. Macková, D. Horák

*Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic, Heyrovského nám. 2, CZ-162 06 Praha 6, Czech Republic*

Magnetic thermoresponsive microspheres can be used for separation of biological agents, drug delivery systems and in other nanotechnologies. They accelerate separation processes making them easier. This work deals with preparation of poly(*N*-isopropylacrylamide-*co*-*N,N'*-methylenebisacrylamide) and reactive poly(*N*-isopropylacrylamide-*co*-glycidyl acrylate-*co*-*N,N'*-methylenebisacrylamide) microspheres by inverse emulsion polymerization in paraffin oil in the presence of magnetic maghemite ( $\gamma\text{-Fe}_2\text{O}_3$ ) nanoparticles. Polymerization was initiated with 2,2'-azobis(2-methyloctanenitrile). The microspheres were characterized in terms of their size and its distribution, morphology and temperature-induced swelling. The effects of several reaction parameters, such as the type and concentration of crosslinker (*N,N'*-methylenebisacrylamide), concentration of  $\gamma\text{-Fe}_2\text{O}_3$ , initiator, emulsifier (Span 80) and polymerization temperature, on the properties of microspheres were examined.

*The financial support of Academy of Sciences of the Czech Republic, project No. KAN401220801, is gratefully acknowledged.*



*Optical micrograph of magnetic thermoresponsive poly(*N*-isopropylacrylamide-*co*-glycidyl acrylate-*co*-*N,N'*-methylenebisacrylamide) microspheres.*