

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Interpenetrating Polymer Network  
Hydrogels Based on VP/MMA Gel and PLGA Diacrylate Macromers**

J. HANNAH LEE, ZAMRI RADZI, University of Oxford, MARC SWAN, John Radcliffe Hospital, DAVID BUCKNALL, Georgia Institute of Technology, JAN CZERNUSZKA, University of Oxford — Hydrogels have been widely used in biomedical applications due to their biocompatibility, similar physical properties to human tissue and appropriate mechanical properties. A thorough understanding of their swelling behavior is necessary to be able to choose the most suitable hydrogel and to applying it optimally. The long term goal of our research is to develop hydrogel systems with controllable swelling behavior for medical/surgical use. For this purpose, interpenetrating polymer network (IPN) hydrogels have been prepared based on the N-vinyl-2-pyrrolidone (VP)/methyl methacrylate (MMA) copolymeric gel and poly(DL-lactic-co-glycolic acid) (PLGA) diacrylate macromers as well as semi-IPN VP/MMA and PLGA hydrogels. The thermal, morphological, mechanical and physical properties of the hydrogels have been characterized and the potential for surgical use verified. This presentation will concentrate on the studies of the swelling kinetics and equilibrium swelling ratios of the hydrogels. In addition, very recent results will be presented on how additions of PLGA can be used to manipulate the swelling behavior of the hydrogel system.

J. Hannah Lee  
University of Oxford

Date submitted: 09 Dec 2009

Electronic form version 1.4