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The Effects of the Thickness and Type of Silicone Coating Materials on the Swelling Behaviour of Hydrogels ZAMRI RADZI, J. HANNAH LEE, University of Oxford, MARC SWAN, TIM GOODACRE, John Radcliffe Hospital, DAVID BUCKNALL, Georgia Institute of Technology, JAN CZERNUSZKA, University of Oxford — Encapsulation is one of the methods to control the degree of hydrogel swelling. In certain medical applications the hydrogels are required to undergone slow initial swelling before they start to gradually swell up to their maximum swelling capacity. Using a dip coating technique, the anisotropic hydrogels were coated with different types of silicone dispersion formulations. The hydrogels were swelled and measured by determining the mass change as a function of time. By varying the coating thickness and concentration of silicone we found that it is possible to slow down the initial swelling and allow the subsequent swelling process to gradually take place to physiologically acceptable levels. This behaviour has been analysed in terms of the permeability to water of the silicone membranes and their mechanical properties.

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