

Abstract Submitted  
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**Comparison of thermal and chemical treatments of ultrathin chitosan films** CHRIS MURRAY, JOHN DUTCHER, University of Guelph — Chitosan is a biodegradable polysaccharide derived from seashell waste products. The high water absorbency and biocompatibility of chitosan have enabled its use as a hydrogel in specialty biomedical applications. Chitosan can be dissolved in weakly acidic solutions enabling its use in applications such as films and gels, which can be converted into chitin by a chemical process known as acetylation. We present the results of several experiments in which changes in the thickness, index of refraction and molecular environment in response to changes in relative humidity for ultrathin films of chitosan are examined as a function of exposure to temperatures above 150 degrees Celsius. Measurements made by ellipsometry and FTIR spectroscopy indicate that changes in the thickness and index of refraction of the films are accompanied by a change in the infrared absorption spectra similar to that associated with acetylation, which is typically accomplished by exposure of chitosan to acetic anhydride. We believe that these changes are responsible for reduced equilibrium water content in the films at all relative humidity values studied, and may offer a simple method for converting chitosan into a chitin-like material.

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