

1997 Research Award

Principal Investigator: Professor Robert P. Kusy

Other Investigators: Mr. Ross McKamey and Mr. John Whitley

Title of the Project: Enhancing the Aesthetics of Alastik Chain Modules Using Poly (para-xylylene) Surface Coatings

Institution: University of North Carolina at Chapel Hill

Brief Summary: In this project a polymer coating called poly (para-xylylene) was used to modify the surface of chain modules with the express intention of reducing degradation associated with water sorption. Four criteria were investigated: the coating coverage, the water sorption, the hydrolytic stability, and the stress relaxation characteristics. This investigation showed that the coating could generally withstand both normal and excessive elongation. The coating did not change the amount of water absorbed, which was not detrimental to the mechanical properties. However, the coating does affect the stress relaxation of the modules. Both coated and uncoated modules could be accurately described using a two-element Maxwell-Weichert stress relaxation model.