

Evaluation of TRIS-DMA-NVP Hydrogels for Making Silicone-Based Contact Lenses

Authors : N. P. D. Tran, H. Q. D. Nguyen, M. C. Yang

Abstract : In this study, contact lenses were prepared through the polymerization of tris-(trimethyl-silyl-propyl-methacrylate) (TRIS), N,N-dimethylacrylamide (DMA), N-vinylpyrrolidone (NVP), and cross-linked with ethylene glycol dimethylacrylate (EGDMA). The equilibrium water content (EWC), oxygen permeability (Dk), light transmittance, and *in vitro* cytotoxicity of TRIS-DMA-NVP with various ratios were measured. The results showed that the EWC increased while the Dk decreased with the increase of NVP content. For the sample with 25 wt% NVP, the EWC attained 53% whereas the Dk decreased to 46 barrers. All these lenses exhibited light transmittance over than 95%. In addition, all these lenses exhibited no inhibition to the growth of L292 fibroblasts. Thus, this study showed that TRIS-DMA-NVP can be applicable for making contact lens.

Keywords : DMA, TRIS, NVP, silicone hydrogel, contact lens

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