

PHYSICAL-CHEMICAL CHARACTERIZATION OF  
POLYMERS USED AS DERMAL-EPIDERMAL  
REPLACEMENT

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The needs of effective therapeutic systems for wound burns, chronic ulcers and other wounds with loss of tissue engender the development of advanced systems of dressings. The most advanced systems were proposed using biopolymers as base material of the dermis, generally, collagen from specific sources with high purity and very high price. Those biopolymers were chosen based on their biocompatibility and easiness of absorption by the human organism. However, synthetic polymers offer the advantage of homogeneity and price together with the easiness of manipulation of physical-chemical properties. It was prepared membranes of poly(N-vinyl-pyrrolidone) (PVP) and poly(vinylalcohol) (PVA) to test their use for this application. It was measured the swelling degree of membranes with different compositions and their dynamic-mechanical properties in a broad range of temperatures, considering the handling by the physician and the use by the patient. The results showed that the PVA membrane had a smaller swelling than PVP ones, both prepared with equivalent procedures. The DMA showed that they have equivalent properties, considering the sensitiveness of DMA for such soft material, and at bellow zero temperature both showed the predominance of the effect of the solidification of the water.