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Structural Properties of Plasma-treated Polymer Films and Their Applications

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Plasma can be used to various applications such as sterilization, inactivation/removal of microorganisms, wound healing, tooth bleaching, cancer treatment, surface modification and plasma polymerization. In this research, we studied the effect of plasma irradiation on the structural, optical, and biological properties of the polymer films. Several polymers were synthesized and then deposited on the glass substrates. The polymer films were treated by oxygen and nitrogen plasmas. Plasma-treated films were investigated by contact angle, infrared absorption spectroscopy, cathodoluminescence spectroscopy, and scanning electron microscopy. Functional materials were prepared on plasma-treated surface, and their performances were investigated using various techniques. Next, we discuss relationship between the performance of functional materials and the structural properties of plasma-treated polymer films.

Keyword: Plasma-treated polymer films