

KAWABATA ANALYSIS AND X-RAY PHOTOELECTRON SPECTROSCOPY ANALYSIS PLASMA TREATED COTTON

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Plasma treatment of cotton fabrics were performed under O₂, Air, NH₃ atmosphere at specified pressure and power. Oxygen and air plasma treatments of cotton increased wettability and uniformity due to surface oxidation while ammonia plasma treated cotton decreased wettability significantly. Air and oxygen plasma treatments had relatively little effect on shear and bending properties. Ammonia plasma treated cotton showed a small reduction in shear and bending properties.

XPS analysis of ammonia plasma treated cotton showed nitrogen was incorporated into cotton surface due to formation amine/amides species. XPS analysis of air/oxygen plasma treated cotton showed a mixture of oxidation and gaseous fixation. SEM treatment with oxygen and air plasma produced rougher, etched/pitted surface relative to untreated while ammonia produced a smoother surface.

