

# Photoreactivity of aromatic polyamide as a liquid crystal photoalignment film

by

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(Received on March 31, 2004 & accepted on May 26, 2004)

## Abstract

We have found that the uniform and stable alignment of liquid crystal (LC) molecules was achieved on aromatic polyamide films exposed to linearly polarized ultraviolet (UV) light, although these polyamides had no common photoreactive group such as cinnamoyl, coumarin or azo chromophore. In this study, in order to clarify the mechanism of the photoreaction on the surface of aromatic polyamide thin films, the measurements of fluorescence spectra and X-ray photoelectron spectroscopy (XPS) were carried out for the polyamide films before and after UV light irradiation. The results showed that the luminescence intensity was decreased by UV light irradiation, and the oxygen content increased in the XPS analysis of the polyamide surface after UV light irradiation. Therefore, it was concluded that the photo-oxidation reaction would occur on the amide group of aromatic polyamide via proton transfer according to UV light irradiation.

**Keywords:** *Photoinduced alignment, Aromatic polyamide, Photoreaction, Liquid crystal display device.*

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