

Mechanism of electrochromism in a poly(ethylene terephthalate) film

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Electrochromic characteristics of dense commercial poly(ethylene terephthalate) (PET) film have been investigated. Intense red color appeared at the interface between a cathode and a PET film polarized to -4 V in an organic solvent containing an electrolyte. With the removal of the voltage, the color bleached slowly. It was found that the electrochromic phenomenon did not appear in the PET film by itself but rather in solution. The solvent penetrates through a silver film to the surface of the PET film. Moreover, the PET dissolves in the solvent when an electric voltage is applied. The electrochromism effect of the dense PET film is attributed to phthalic acid ester dissolving in the solvent.