The behavior of iodine in polycarbonates as thin films or in solution was investigated by spectroscopic methods. It is well known that the color of a solution containing iodine is dependent on the solvent. It is assumed that the difference in color is due to charge-transfer interactions. Solutions of 3, 5, and 25% (w/w) iodine in commercial polycarbonate (BPA-PC) and nitrile polycarbonate (CN-PC) in dichloromethane were studied. Films of iodine-doped BPA-PC and CN-PC exhibited a difference in color, which could be attributed to a difference in the formation of the iodine charge transfer complex in the polymer films. Unlike BPA-PC, CN-PC contains a dipole from the nitrile functional group, which may cause increased charge-transfer interactions. UV-Vis absorption spectra of the investigated polymer films showed different wavelengths of maximum absorption in the visible range. Infrared spectroscopy of iodine-doped PC films in comparison with pure PC films showed a shift in the band at 1774 cm⁻¹, which was assigned to the vibrational mode of the carbonyl group in the polymer chain. This shift may be due to an electrostatic interaction between iodine and the carbonyl group, which could result in the formation of a charge transfer complex.