

Deactivation of excited singlet aromatic hydrocarbons by metallic ions in ethanol-water solution

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The deactivation of a number of excited polycyclic aromatic hydrocarbons by copper(II), cobalt(II), nickel(II) and chromium(III) in ethanol-water (1:1 by volume) has been investigated. In spite of the fact that most of the processes have very favourable ΔG° for electron transfer and ΔH° for energy transfer, the observed rate constants are considerably below the diffusion-controlled limit. The k_Q values measured correlate well with those calculated assuming a dipole-dipole-induced energy transfer mechanism. The slow rates obtained are considered to be the consequence of the large distance of closest approach. © 1987.