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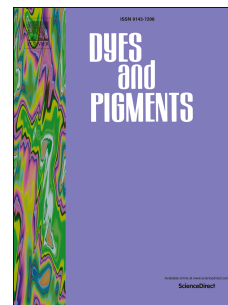
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Red fluorescence thin film based on a strong push-pull dicyanoisophorone system

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Abstract: Dicyanoisophorone derivatives (**1-3**), which contain a strong push-pull chromophores system, have been prepared by a two-step condensation reaction, and their fluorescence in solution, polymeric thin film and pure solid state are measured. It is found that **1-3** exhibit no or weak fluorescence in both solution and pure solid state, but strong red fluorescence in polymeric thin film. Mechanism study implies that the enhanced fluorescence of **1-3** in polymeric thin film results from the restriction of intramolecular vibrational and rotational motions. In addition, it is also found that the polarity of polymeric matrix has influence over the fluorescence of dicyanoisophorone derivatives, using PMMA as polymeric matrix, a fluorescent thin film with a strong red emission is obtained.

Keywords: dicyanoisophorone derivatives, red fluorescence, polymeric matrix, thin film, push-pull chromophores system, synthesis.

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