Fluorescence Efficiency of Rhodamine 6G Doped PMMA

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Abstract:

The absolute fluorescence quantum efficiency and fluorescence lifetime of fluorescence emission from rhodamine 6G doped Poly(methyl methacrylate) (PMMA), prepared with different concentrations of the dye and different solvent(acetone , dichloromethane) were reported.. For both solvents, fluorescence quantum yields are enhanced with increasing of concentration. The yield of fluoresce of rodamine R6G in acetone is 0.559 and .667 while 0.81 and 0.88 in dichloromethane solvent respectively. In both cases, the solutions are assumed to be in the limit of low concentration ($2x10^{-5}$ $Moll^{-1}$ and $5x10^{-5}$ $Moll^{-1}$) excited close to their long-wave absorption band and at room temperature .

Key words: Fluorescence lifetime; Fluorescence quantum yield; Dye doped polymer; Rd6G; PMMA