

Concentration and Temperature Dependence of Laurdan Fluorescence in Glycerol

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Steady-state and time-resolved fluorescence measurements have been performed on Laurdan, dissolved in viscous glycerol, as functions of temperature and concentration. The results indicate spectral heterogeneity of the Laurdan solution. The fluorescence decay time distribution is attributed to radiative deexcitation of spatial conformational forms of locally excited (LE) and charge transfer (CT) states, the $S_1(CT)_{EQ}$ state being in thermodynamic and vibrational equilibrium.

The lifetimes and contributions of the different fluorescence modes depend on concentration and temperature. The excitation and emission spectra show discontinuous changes with increase of the Laurdan concentration. We suppose that the observed changes are caused by the formation of Laurdan micelle aggregates.

Key words: Laurdan; Locally Excited and Charge Transfer States; Fluorescence Decay Time.