

The Synthesis of Polymeric Dye Containing Azobenzene Side Group
and Its Properties.

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Polymeric dye containing azobenzene side group was prepared by copolymerizing methyl methacrylate with 4-(N-methacryloyl)-aminoazobenzene(MAAB) and its various properties were studied.

MAAB was synthesized by reacting p-aminoazobenzene with methacryloyl chloride.

The wavelength of maximum absorption of polymeric dye was blue-shifted compared with that of p-aminoazobenzene and polymeric dye shows good light fastness.

The azobenzene group in the side chain of the polymeric dye was isomerized from trans form to cis form by ultraviolet irradiation and reverse isomerization was found by visible light irradiation. The rate of cis-trans recovery by visible light irradiation was slow with a decrease in the mole fraction of the azobenzene side group in the polymeric dye, with an increase of solvent polarity and the orientation of polymer chains.

In photoviscosity effect, viscosity was decreased with an increase of the mole fraction of the azobenzene side group in the polymeric dye.