preparation and characterization of aflourescent solar collector

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The study of DSC ,FT-IR , electrical conductivity and dielectric properties of the investigated samples of pure PMMA and perylene DROPed dye clearly showed that the thermally polymerized samples are more stable compared to those prepared by solvent casting . the physical properties of polymers are strongly affected by the acidbase character of the solvent.Study of the photo-stability measurement showed the long term stability of the dye for thermally polymerized samples . In the solvent case samples the dye reduced by 90% after 2 weeks exposure to sunlight.Study of the optical absorption of PMMA showed adecrease in the optical gap for doped samples prepared by thermal polymerization, which is attributed to the caging of dye molecules between the polymer chains.Preparation of PMMA/ Perylene by thermal polymerization reduced the strong UV degradation of both the polymer and dye .Fluorescence spectra investigated showed that the lower concentration results in the highest fluorescence intensity and ared shifted spectrum and conseqintly the highest optical efficiency.The long exposure of FSCs to sun light for one season(summer) showed the decrease of the fluorescence quantum yield and anew.