P-5-87

FREE-RADICAL GRAFTING OF 2-HYDROXYPROPYL METHACRYLATE ONTO POLY (ETHYLENE TEREPHTHALATE) FIBERS

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The graft copolymerization of 2-HPMA onto poly (ethylene terephthalate) fibers has been studied using 4,4' – azobis (4- cyanovaleric acid) as an initiator.
The grafting increased the diameter and moisture regain. Effect of different parameters, such as initiator and monomer concentration, reaction time and temperature were studied. Optimum condition for grafting were determined to be [ACV]=4.0×10-3M, [2-HPMA]=0.5 M, T=75 ?C, t = 60min. The rate of grafting was calculated to 1.25 power of monomer and 0.90 power of initiator. The overall activation energy for grafting was ascertained as 87.25 kJ/mol. The use of various emulsifiers such as DTAB, CTAB and SLS were shown an inhibition effect in grafting.