

Hydroxyquinoline copolymers synthesis, characterization and thermal degradation studies

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Abstract. In the flow research article, we report the amalgamation of a new natural copolymer of 8-hydroxyquinoline-5- sulphonic acid, guanidine, and formaldehyde in the molar proportion 1:1:2 inside seeing 2 M hydrochloric corrosive as an impetus by polycondensation strategy. The copolymer 8-HQ-5-SAGF was portrayed by elemental examination, Ultra-Visible, Infrared spectra, ¹H and ¹³C Nuclear magnetic resonance spectroscopy. Furthermore, we have examined the non isothermal thermogravimetric examination for assurance of relative warm stability and their mode deterioration, Energy of Initiation, frequency factor and request of response was measured by Freeman-Carroll (FC) and Sharp- Wentworth (SW) techniques. Energy of enactment controlled by Sharp- Wentworth and Freeman-Carroll strategies are in acceptable concurrence with one another. The surface component of copolymer is inspected by filtering electron microscopy.

Keywords. copolymer resin, polycondensation, morphology, thermal analysis, spectral studies, sharp-wentworth

1. Introduction

The thermal analysis research comprises a collection of techniques where the physical property of the substances is measured as a function of temperature when exposed to a controlled substance temperature programme. Thermally stable copolymers have been boon for polymer chemist because of their high efficiency and superior utility. They find applications as lubricants, adhesives, coating materials, catalysts, semiconductors, ion exchangers, fire resistant materials [1-4]. Rahangdale and coworkers prepared copolymers resulting from 4-pyridylamine, 2, 4-dihydroxypropiophenone with formaldehyde and warm corruption was completed [5]. To examine thermal properties and degradation parameters of the terpolymer thermogravimetric analysis technique was used by Liu et al. [6]. Kinetics and warm deterioration of 2-hydroxy, 4-methoxybenzophenone, formaldehyde and 1,5- diamionaphthalene within the sight of acid with different feed ratio of reactants has been readied. It was found from the outcomes that the deterioration was gradual reaction and order are considered to be almost identical [7]. FC and SW techniques were utilized to study the thermodynamic and kinetic parameters of terpolymer [8]. The copolymer tar was blended by the buildup polymerization including monomers like phenylhydrazine (0.1 mol), 2,4-dihydroxy benzoic corrosive, and formaldehyde in 3:1:5 ratios

