Synthesis of poly [(ethyl substituted imine) acrylate] from condensation of poly [(ethylamine) acrylate] with various carbonyl compounds.

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Abstract :

In the present investigation , new eight poly esters as schiff bases which containing pendant imine group were synthesized by treatment of poly acryloyl chloride with ethanol amine hydrochloride by esterification process in acidic media to produce poly [(ethylamine) acrylate] , and the following step was condensing amine group with various aliphatic and aromatic carbonyl compounds to obtain poly [(ethyl substituted imine) acrylate] .

All the synthesized polymers were characterized by their melting points , softening points , (FT-IR) spectra and solubility .

Introduction :

Acrylate and methacrylate esters are derivatives of the corresponding acids or acids chlorides[1]. The polyacrylates obtained by a head -to-tail addition process consists of a hydrocarbon back bone with a pendant ester group.

Many methods are suitable for synthesis of poly esters which include self-ondensation of ω-hydroxy acid[2], ring-opening polymerization of lactones[3], poly condensation of carboxylic acids with diols [4] , tranesterfication [5] , poly condensation of diacyl chlorides with diols [6] , and the last reaction is commercially use the curing of epoxides with anhydrides [7] .

Poly acrylates were first prepared in 1873 by Caspar and Tollens [7a] .
These polymers have been adapted on a broad array of applications and industries because of their unique properties. Poly(methyl acrylate) and poly (methyl methacrylate) can be molded or formed into rigid plastic objectsof outstanding beauty, brilliance transparency , derability to impact, outdoor exposure , and article illumination. The availbility of a large group of esters offers the possibility of tailor-made polymers and copolymers with a wide range of physical properties [7b] suitable for a broad variety of applications.

A series of novel azo polyelectrolytes have been synthesized from poly (acryloyl chloride) [8] , and new kind of polyesters were modified with palmitoyl chloride and acryloyl chloride [9] , another work to synthesize cross–linking polyesters such as poly substituted ethylacrylate and methacrylate [10 , 11] , so, in this work polyester containing pendant NH_2 group was prepared and condensing it with various carbonyl compounds to synthesize new polyesters as schiff bases which contain (C = N –) imine group, where it has known that schiff bases have interesting biological activity [12- 18].

Experimental

Melting points and softening points were determined on Gallen Kamp melting point apparatus (MFB – 600) ,

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