

Chemical modification of Cellulose Acetate by Diallylamine

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ABSTRACT

Cellulose acetate (CA) was modified using Diallylamine (DAA). The structure of the modified polymer was characterized by ¹³C-NMR. The chemical modification is based on the reaction between the active hydrogen of the amino group of Diallylamine molecule and acetyl group of the glucopyranose ring in cellulose acetate. The thermo gravimetry (TG) was used to investigate the thermal stability of the modified polymeric sample. The modified cellulose acetate exhibits higher thermal stability as compared to the unmodified CA, Which is attributed to the presence of thermally stable pyrrolidine rings throughout the polymeric chains. The crystallinity and morphology of the modified polymeric sample were investigated using X-Ray diffraction (XRD) and emission scanning electron microscope (ESEM) respectively. The presence of Diallylamine moieties (as pyrrolidine ring) in the cellulose acetate matrix improved its mechanical property. Also, the organic nature of Diallylamine moieties inside CA matrix reduced its wettability.

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