

Characterization of the Polylactic acid stretched uniaxial and annealed by Raman spectrometry and Differential scanning calorimetry

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Abstract : in this work, we have been interested in the characterization of the effect of heat treatment and mechanical treatment on the crystallinity of a polylactic acid (PLA) film by two techniques, DSC and Raman spectroscopy. the results obtained by the DSC for the stretched film shows the appearance of a broad peak of crystallization around 120 ° C, a rise in melting peak in a significant way, which shows that the uniaxial stretching has increased the crystallinity of the PLA, whereas for the annealed film appearance of a double melting peak. The results obtained by Raman spectroscopy show new peak appears at 922 cm⁻¹ after stretching process, indicating crystallization process occurs.

Keywords : Raman, DSC, PLA, crystallinity