

고분자량 PEG-diamine 에 의한 PET의 아민분해 및 그의 표면특성

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The biaxially drawn PET film was aminolyzed with PEG-diamine at 150°C for various time, and its properties were investigated with NMR, IR, GPC, density, DSC, and contact anglemeter.

The results are as follows ; By the aminolysis reaction, the end of PET chain is blocked by PEG-diamine. \overline{M}_n and \overline{M}_w of PET-b-PEG show a decreasing tendency with treating time, and polydispersity index does not show noticeable change. The crystallinity measured by density increase with the treating time because the crystallization of the PET chain in the amorphous region may be promoted by the better chain mobility of the PET chain blocked with PEG. The fold period of the chain folded lamellar crystal formed through recrystallization is smaller than that of the original PET crystal.

The nondispersion interaction force(I_{sw}^n) and the work of adhesion(W_a) of water to specimen have higher value as the PEG content increase up to 3.2-4%, above which value shows a decreasing tendency. Therefore, the saturated value of PEG content for the increase of hydrophilic property is 3.2-4%.