# Structure-Property Relations of Segmented Block Copolyetheresters. II. Crystallization Behavior of Copolyetherester Blends

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Segmented block copolyetheresters based on poly(butylene terephthalate) and poly(tetramethylene ether glycol) with various hard segment contents(HSC) were synthesized and melt blended with each other by 1:1 blend ratio. 4 kinds of blends were prepared: (1)blend of copolymer-1(82 wt% of HSC) with copolymer-5(20 wt% of HSC), which have 51 wt% of HSC on the average, (2)blend of copolymer-2(65 wt% of HSC) with copolymer-4(35 wt% of HSC), which have 50 wt% of HSC on the average, (3)blend of copolymer-1 with copolymer-3(52 wt% of HSC), which have 67 wt% of HSC on the average, (4)blend of copolymer-3 with copolymer-5, which have 36 wt% of HSC on the average. All the blends are classified as compatible crystalline/crystalline blends and it is expected that two crystallizable components can cocrystallize in the blended state because of the identical structure of the hard segment. For all the blends examined, the high HSC components dominate the overall crystallization of blends. In case of blend-1, melting temperature is nearly the same as that of the high HSC component and the fraction of hard segment in the crystalline state is greater than that of the situation when only the high HSC component crystallizes, which implies that the low HSC component also participates in the crystallization even though it does not exhibit separate melting endotherm. In case of blend-2, the melting temperatire is somewhat smaller than that of the high HSC component and the hard segment fraction in the crystalline phase is smaller than those of the situations when only one component, either high or low HSC, crystallize. By annealing the melting thermogram changes to broad endotherm between melting temperatures of the two components. Blend-3 shows similar behavior. The crystallization behaviors of the blends will be discussed in comparison with the crystallization of copolymer which has nearly the same HSC.