

EFFECT OF MOLECULAR WEIGHT AND COMONOMER CONTENT ON CAPILLARY FLOW INSTABILITIES OF METALLOCENE ETHYLENE/1-OCTENE COPOLYMERS

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Abstract

Metallocene-catalyzed ethylene/1-octene copolymers were studied using controlled-speed capillary rheometer in order to identify the onset of flow instabilities. Molecular weight and % comonomer content were varied. Two series of the copolymers were used: (1) copolymers having the same comonomer content with different melt flow indices and (2) copolymers having the same melt flow index with different comonomer contents. It was found that the onset rate of sharkskin and the onset rate of gross distortion increase with increasing of the melt flow index. Severity of sharkskin increases with the melt flow index and the shear rate applied. Both onset rates of sharkskin and gross distortion were found to decrease and level off with increasing of the 1-octene comonomer content.

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